Imagineering the Butterfly Effect:
Complexity and Collective Creativity in Business and Policy

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To my children Kaat and Michel
and to Luc, my partner in life and his children
and all they stand for,
and to my family, and theirs, and theirs, ….
and to our friends, and theirs, and theirs, ….
and especially to my colleagues and students.

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Academic Abstract

"Evolution and design, the course of nature and man's intervention in it, are notions that seem to clash in the dualistic view taken by Western thought" (Jantsch, 1975). Mankind is traditionally seen as an element at the mercy of evolution and not as an active agent in the universal evolution. Recent breakthroughs in the study of non-linear, dynamic systems as articulated in complexity science, point a way to overcoming the duality of traditional models. Especially since the principle of 'order through fluctuation', a discovery of Noble price winner Prigogine, seems to underlie all processes of evolution in living dynamic systems, designing for evolution seems to be a distinct possibility and even responsibility in human systems. In this study the possibility is explored to design 'an adaptive tension engine' to evoke 'order through fluctuation' in a direction that is desirable at the same time, as well for an organization as for society at large.

According to leading scholars in the social sciences, we are living in post-normal times which raises challenges for human systems, never encountered before. Organizations must transform or evolve amidst internal and external complexity, turbulence and uncertainty. Conventional equilibrium models are no longer effective in this context but more applicable models are recently emerging in complexity science. One such model, the model of dissipative structures, based on the principle of 'order through fluctuation', provides a framework for rethinking organization transformation as organizational emergence and to approach the phenomenon from a design perspective. According to Goldstein (2011), a leading scholar in the field of emergence in complex systems, there is a need to assess the varied constructional approaches that are possible to guide organizational emergence. This study evaluates such a constructional design approach.

Besides of presenting and evaluating the method, the study suggests to use the word of imagineering explicitly to complement the word design to further design thinking in working with human systems while the word design carries with it, an association with complexity, different from the one at stake in complexity science, and an association with certainty which is often not available in complexity. On top, by introducing another word, the method illustrates its own logic: reframing phenomena to generate new order. Moreover, evolving from the industrial, linear

society to the non-linear knowledge society, we need new words to say new concepts.

Since designing for organizational emergence requires a non-classical thought, a general introduction to 'Complexity and Social Systems Inquiry' is given whereby practical notions and implications of complexity, emergence and self-organization are put forward. To evaluate the method, two experimental, natural case studies are presented (and complemented with lots of smaller case-material) in which the author was involved as an organizational designer from the very beginning. One case study concerns the city of Antwerp and is an exploration of the method in a non-profit, policy context. The other case study concerns the Belgian retail-chain Veritas. The method proved to be very effective in 'revitalizing' the organization by making it open to its environment and by liberating collective creativity at the same time. In Antwerp the strategic direction of an open, tolerant city was chosen for and in the Veritas-case the strategic direction of creativity and self-expression was chosen for. The study ends with a discussion, conclusions and limitations and finally some directions for future research are discussed.

Managerial Abstract

With growing complexity in society it is essential for managers, in business as well as in policy, to know the difference between complicated problems (such as putting a man on the moon or building a power station) and complex problems (such as raising a child or influencing climate change in a more wanted direction). In complex problems everything is connected to everything else and instead of asking for clear cut, linear top-down solutions which can be made based on great expertise, complex problems asks for more subtle, more 'complex' approaches in which involved stakeholders can engage themselves creatively and collectively (with all their expertise and good-will) to optimize the evolution of the 'problem' in the envisioned direction. Complex problems ask for joining-up approaches, approaches that allow for adaptation instead of being turned over to an end structure and an end result that might be totally destructive for some stakeholders.

Therefore it is of utmost importance that managers of today extent their competencies of linear approaches of strategizing by planning and controlling with more complex, 'joining-up' approaches of strategizing by design while complexity in society is growing exponentially and avoiding complexity is no longer a responsible option. To say it with the words of an IBM CEO Study: "Our world is increasingly subject to failures that require systems-level and cross-systems-level thinking and approaches. The consequences of any decision can ripple with unprecedented speed across business ecosystems the way the crisis has impacted nearly every market". But what is true for bad decisions is also true for great decisions even when they are small: they too can now 'ripple across ecosystems with unprecedented speed and emerge into something big'. The real challenge then is to learn to use this mechanism in our advantage and this is exactly the route this study explores: This study presents and evaluates the design approach of imagineering, a design approach that tries to evoke this effect of 'rippling through and emerging into something big' by liberating the imagination and the collective creativity in an envisioned direction in a way that it becomes an engine in sustainable change and value innovation.

While the effect of 'rippling through and emerging into something big' has still something of a fairytale for managers, definitely while this is called 'the butterfly effect', it is an essential mechanism in complexity science, the science of non-linear,

dynamic open systems, a science that had to wait for the computer (and its massive calculations) in order to betray its secrets. Since designing for the butterfly effect requires a non-classical thought, a general introduction to 'Complexity and Social Systems Inquiry' is given in this study whereby practical notions and implications of complexity, emergence and self-organization are put forward.

To evaluate the design method, two experimental, natural case studies are presented (and complemented with lots of smaller case-material) in which the author was involved as an organizational designer from the very beginning. One case study concerns the city of Antwerp and is an exploration of the method in a non-profit, policy context. The other case study concerns the Belgian retail-chain Veritas. The method proved to be very effective in 'revitalizing' the organization by making it open to its environment and by liberating collective creativity at the same time. In Antwerp the strategic direction of an open, tolerant city was chosen for and in the Veritas-case the strategic direction of creativity and self-expression was chosen for. The study ends with a discussion, conclusions and limitations and finally some directions for future research are discussed.

Preface

Whenever something important has been realized, I strongly believe that it is the consequence of collective creativity oriented in a strategically wanted direction. This is definitely the case when finishing a PhD at a knowledge institute such as NHTV. Therefore I would like to thank the people that were collectively and creatively engaged in this very process.

First of all, I would like to thank the Board of NHTV (and the former Board) and the Management Team of Academy for Leisure for giving me all the opportunities a knowledge worker can hope for. Thanks for the sustained trust in the field of imagineering, now already for twenty years and for giving me the chance to do a PhD-study.

Thanks also to my two promotores. First of all I would like to thank Professor Jo van Engelen for his patience, his professional expertise and enthusiasm to accompaign me on this uncertain and unpredictable route to develop the academic argument underlying the design approach of imagineering. Thanks also to Professor Alfonso Montuori for giving me critical feedback in the last phase of this study and to open my eyes for several concepts in the field of complexity and creativity. It was great working with both of you and I sincerely hope that finishing the dissertation is just the start of more inspiring work together.

And then of course there are my dearest colleagues whose daily laughings and reflections made this sometimes endless path an inspiring journey: Koert de Jager, Liliya Terzieva, Celiane Camargo-Borges and Vincent Platenkamp. I really don't know whether I was able to go this path without you. Thanks also to my other colleagues of the master and of the research line for the enduring cooperation: Margo, Soren, Shirine, Danielle, Koen, Marco, Geoff, Wilco, Margo, Frank, Moniek, Mbenga, Roeland, Nicoline, Tijs, Ger, Peter, Else, Sophie, Juul, Esther, Gert-Jan, Youp, Thomas, Simon, Lenia and Kristel.

But besides of the knowledge workers around me there is another group of great people that was crucial in this whole study: The people from practice, the managers and strategists that had the conviction that knowledge might make the difference

in though times and that trusted me in working with their organizations: Kristine Ooms (in 1998 Marketing Director of Concentra/Gazet van Antwerpen), Sylvain Peeters (in 1998 Marketing Director VRT/Ketnet), Johan Leyssen (in 2003 Strategic Director, LDV Bates and now Director of Hola Pola Travel agency), Tom Andries (in 2003 Creative Director, LDV Bates and now Director of Today Design), Dirk Diels (Director Economy and Work at the city of Antwerpen) and Marc Peeters (CEO Veritas).

Then also from the external world, I would like to thank the people of the Advisory Board of the Master in Imagineering: Paul Nouwen (†) (Former CEO of ANWB), Paul Gregorowitsch (Chief Commercial Officer, Airberlin), Kees Van der Graaf (Former President of Unilever Europe (the Netherlands), Tom Wolber (Vice President of Disney Cruise Line (USA), Koen Vandenbempt (Professor of Strategy, Department of Management, Faculty of Applied Economics UAMS (Antwerp University Management School), Antwerp University (Belgium) and Ernie Heath (Professor and head of the Department of Tourism Management, University of Pretoria (South Africa).

Thank you also to the students and executive students of all the editions of the master, the yearly expeditions towards new enterprise logic, for all your critical thinking, questioning and all the great, inspiring discussions. I'm happy and proud to be able to present you a 'total' (but not final) picture of our work by now.

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But most of all of course, I want to thank both my kids, Kaat and Michel and my partner Luc. Thank you for your active support, your critical listening (and sometimes even reading) and your constructive and creative reflections on those moments that I needed it the most.

Diane Nijs
Brasschaat/Breda, February 13, 2014

1 Introduction

Abstract

This chapter presents the research problem in context. It explains that our world is becoming more complex every day and that this growing complexity comes with uncertainty and ambiguity. This challenges our conventional reductive, disjunctive, linear and deterministic thinking and our conventional practice of planning and controlling. It asks for new thinking and different practices that enable creativity, innovation and change in the emerging mode. To cope with growing complexity we have to extend our worldview, our thinking and our methods. This chapter touches as well upon the macro-perspective as upon the micro-perspective to set the stage for following chapters.

Passively "drawing consequences" is not the only possible economic behavior. You can also try and change the given circumstances. If you do that, you do something not yet contained in our representation of reality.
Schumpeter, 1911:104

[…] to imagine a language means to imagine a form of life.
L. Wittgenstein, Philosophical Investigations, 1961

1.1 Introduction

Our world is becoming more complex every day. Every day the number and diversity of elements and systems and their interactions is growing exponentially on a global scale resulting in a world in which everything is connected with everything else. Daily we can see the effects of this growing complexity with its growing connectivity as for example in the events of Occupy Wall Street and the Arab Spring. Growing complexity comes with its new opportunities for individuals in a collective but also with its challenges of growing turbulence and uncertainty for existing patterns, processes and organizations. Every day it becomes more obvious that in times of growing complexity our existing linear logic of planning and controlling falls short and that we need new (design) approaches, new thinking, transdisciplinarity and non-linear logic, to complement existing thinking in order to cope with growing complexity (Montuori, 2010, 2006, 2005, 1989; Montuori and Purser, 1996).

Growing complexity changes drastically the context in which organizations have to operate. Managers or leaders of existing organizations and institutions are daily confronted with a growing amount of complex problems and with new competitors that play 'their' game with a different logic such as Wikipedia for example, realizing the largest encyclopedia ever written 'the self-organizing way'. For most existing companies and organizations, growing complexity comes with one option only, to put it bluntly: change or die; transform the deep logic of value creation, learn to see customers as participants in value creation, learn to complement the conventional logic of planning and controlling with a new kind of emerging, joined-up (Mulgan, 2013) logic (what we like to call more actively 'joining-up' logic) or become irrelevant and disappear. With growing complexity we have to learn to design for organizational emergence.

When conventional approaches seem to become less effective, there is a search for new approaches. Growing turbulence and uncertainty in today's society is seen as an essential reason why former (linear) thinking and methods (such as planning and controlling) fall short but they are at the same time the reason why new thinking and approaches are searched for. On top, growing turbulence and uncertainty seem to have a structural origin. They seem to be here to stay. It was the Nobel Prize Winner Chemistry in 1977, Ilya Prigogine himself who explained today's growing turbulence as a consequence of denser connectivity in the environment as more people are increasingly mobile, live closer together, are better connected than ever and affect each other more intensively than ever before in history (Van der Heijden in Kahane, 2012:x).

While the amount of complex problems is growing drastically it is important to see in what way complex problems are fundamentally different from complicated

problems. Not knowing the difference or neglecting the difference and not knowing that this kind of problems ask for another logic to cope with them, can be very harmful for organizations and for society at large. Zimmerman and Glouberman (2002) explain the difference between simple, complicated and complex problems as follows: A flat tire is a simple problem for which there is a relatively straightforward solution. Putting a person on the moon is a complicated problem: it is an extremely difficult task but having done this once, the solution is replicable while it is a controlled, technical solution derived from known parameters. Raising a child then, is a complex problem. It is a problem in which everything is connected to everything else.

To cope with complex problems, there will never be one right formula while the process is repleted with 'unknowable's. Having raised one child does not mean that one has the answers to raising another child. In coping with complicated problems the conventional, linear logic is the appropriate logic. In coping with complex problems, the non-linear logic coming forth from studying living, dynamical systems as articulated in complexity science is more appropriate. In coping with complicated problems one can think in 'solutions'. In coping with complex problems, thinking in terms of 'evolution' is mostly more appropriate as the 'solution' mostly consists of enabling 'growth or development', in complexity terms: the 'solution' is an 'emerging' one. This study evaluates whether the design approach we call Imagineering (Nijs, 2012, 2009, 1993; Nijs and Jager, 2007; Nijs and Peters, 2002; Nijs and Van Engelen, 2012,2011,2010), a design approach that appeals to the imagination in order to evoke creative participation in processes of value creation, is effective in coping with this last category of problems.

Even when history illustrates the endless spontaneous creativity of humankind, most people will agree on the fact that complex problems such as poverty, climate change, school reform, political reform or terrorism won't be solved without us, human beings, searching for better approaches. There is a growing need for a better understanding of the evolutionary dynamics of social organizations and systems (including companies, political parties, governments, factories, schools and many more) (Parellada, 2002; Ravetz, 2006) in order to cope with growing complexity. I believe together with other social, complexity and trans-disciplinary scholars, that complexity theory can contribute to an important extent in liberating humanity from the inherited mechanical, linear and reductionist thinking that limits our coping with complexity and together with Johnson (2010 a and b) I also believe that complexity theory can bring the social sciences on the foreground of scientific development not in the least via the design paradigm as 'the methodology of complex systems science inescapably involves design' (Johnson, 2010a:195).

Fortunately growing complexity comes not only with its challenges but also with its new perspectives, practical as well as academic: In practice there is the *structural shift in value creation*: the emerging perspective of simultaneous, transparent value creation in value networks in which consumers are seen as participants in value creation comes to complement the industrial logic of sequential value creation in value chains which keeps individual agents locked in the passive role of the consumer. Aligned with this shift in value creation in practice there is the emerging shift in academic thinking: In the academic management world there is *the emerging perspective of complexity science* that comes to complement the conventional academic Newtonian-based, linear perspective which makes it possible to switch between linear, predominantly closed systems thinking and non-linear open systems thinking depending on the kind of problems we are coping with.

As these new perspectives shed new light on change, innovation and transformation, we first explain both emerging perspectives briefly as they are fundamental for the understanding of the research problem and the research questions. Then we shortly review existing thinking about coping with complex problems as well from an organizational perspective as from a design perspective, we discuss recent European research concerning the specific subject of designing for organizational emergence in order to present the research problem, research questions, research assumptions and finally the outline of this study.

1.2 Growing turbulence and complexity in society

Growing complexity comes not only with its challenges for existing perspectives but it also opens new perspectives. First we discuss the practical implication of the structural shift in value creation and then we discuss the emerging academic perspective of complexity science.

1.2.1 Implications in practice: A structural shift in value creation

Growing connectivity, interdependency, diversity and interactivity has major influences on the way we can create value in society. Organizations such as Wikipedia, Google and Facebook are some of the fascinating exponents of new value creators that enter the field with a different value creating logic. Every day it becomes more evident that if existing companies or institutions intent to flourish in this new connected context, they need to be able to transform their enterprise logic instead of just adding the digital infrastructure to the conventional way of creating value.

Two modes of Value Creation: Sequential and simultaneous

In original settings like tribes, social systems have always had two modes of value creation: the sequential mode and the simultaneous mode (Ramirez, 1999).

Table 1.1 Two complementary models of value creation

Exchange Paradigm	Value Creation Paradigm
Sequential mode of value creation	Simultaneous mode of value creation
Exchange: the act of giving and taking in return for something	'Initiators and participants' create value together
Firms create value, consumers consume/destroy value	The purpose of consumption is not 'having' but 'being' and 'becoming'
Self-interest	Mutual interest
Shareholder perspective: Profitability dominates responsibility	Stakeholder perspective: Responsibility emphasized over profitability
Value creation in chains	Value creation in networks
Limited roles and responsibilities	Broader roles and responsibilities

In the industrial context the linear, sequential mode became dominant: value creation was conceptualized in value chains for value exchange and, separated from producers, consumers were seen as destroyers of value. In today's networked context, value creation becomes everyday more and more simultaneous in the first place, organized in value networks. Sequential value creation then happens under this umbrella of simultaneous value creation while it is a less complex form of value creation. As a matter of fact, in 2004 the American Marketing Association officially changed the definition of marketing from being centred around the concept of 'exchange' towards an orientation on 'value creation'.

In the academic marketing literature the fundamental changes in society have resulted in for example the work of Vargo and Lusch (2004) on the evolving marketing logic from a goods-dominant logic towards a service-dominant logic, an evolution towards an alternative paradigm, a new more comprehensive and inclusive dominant logic, that takes into account "the continuous nature of relationships among marketing actors" (Sheth and Parvatiyar, 2000:140), "that integrates goods with services and provides a richer foundation for the development of marketing thought and practice" (Vargo and Lusch, 2004:2). In 2007 the American Marketing Association even extended the orientation of 'value creation' towards 'value creation for society at large'.

It will be evident that this shift brings with it enormous opportunities for society as business innovation should be, according to this definition, societal relevant. This perspective makes social innovation and business innovation closely related to one another. This structural shift in value creating logic in society asks for enterprise logic transformation in existing companies, especially in companies that have their origin in a previous century.

Transforming the enterprise logic: rethinking relevance and relationships

While redefining the basic definition for an association such as the American Marketing Association is a remarkable thing to do, something which is only done when there is a real and urgent need to do so, for organizations and institutions changing something as fundamental as the enterprise logic, changing the logic of value creation itself, is even harder to do. Most often it will only become an option on the moment when there is a clear sense of being completely out of touch with the market (sometimes described as an 'autistic' characteristic), when there is no option except from changing. As changing is perceived nowadays as taking an enormous risk, this risk that has to be balanced against the risk of not changing. Changing the enterprise logic is something very fundamental as it involves a whole group of people, mostly even the whole of the organization. On top, in most cases, surviving the transition in a successful way is decisive for the common future. Often this risky activity is seen as the job of a new coming CEO.

Essentially, enterprise logic transformation from the sequential, industrial exchange logic working with consumers to the simultaneous networked co-creative logic working with consumers as participants is a matter of redefining relevance/responsibilities and redefining relationships/roles (Sheth and Uslay, 2007; Ramirez 1999; Normann and Ramirez, 1993, Normann, 2001). In the exchange logic roles are played by producers and consumers of which the latter destroy value. In the networked logic, all shareholders involved become participants in value creation and consumers are seen as building value instead of destroying value. In the former logic an actor defines its responsibility rather limited as taking care primarily for shareholder value while in the networked logic, success depends on being able to orchestrate mutual value and becoming better at doing that while interacting in a value creating network.

In order to get customers as participants in value creation and to realise 'return on customer base', the organizations has to articulate a clear societal relevance. The organization has to be able to govern through reputation networks (Majchrzak, Logan, McCurdy and Kirchmer, 2006) which is first a matter of identifying the network in which one wants to play an orchestrating role, then identifying inspiring players and finally working with them to build reputation and leverage the own reputation.

The interesting consequence of redefining enterprise logic from a perspective of relevance and participation is that by articulating relevance a positive mechanism enters the organization to replace the rather 'objective' one of profit or shareholder value. This is a very crucial thing to do from a perspective of inspiring creativity as it is one of the most prominent scientific insights from creativity research that 'positive affect leads to higher levels of creativity' (Hennessey and Amabile, 2010:574) and it is by stimulating creativity that innovation can happen. According to George (2007:439) "creativity is increasingly recognised as as a critical means by which organizations and their members can create meaningful, lasting value for their multiple stakeholders in today's dynamically changing environment (e.g., Amabile, 1988; George & Zhou, 2001, 2002)".

On top, redefining the business conception from these perspectives of relevance and participation will most probably lead to what Hargadon and Bechky (2006:484) call 'moments of collective creativity'. Such moments reflect "a qualitative shift in the nature of the creative process, as the comprehension of a problematic situation and the generation of creative solutions draw from—and reframe—the past experiences of participants in ways that lead to new and valuable insights". Hargadon and Becky (2006) identified four sets of interrelated behaviour patterns that moved teams beyond individuals' insights: help seeking, help giving, reflective reframing, and reinforcing. These patterns most probably will emerge when something as fundamental is done as redefining the business conception in the direction of more relevance, especially when the redefined business conception is articulated in an imaginative artefact that is integrated in the identity of the company (by integrating it in the logo or another central identity-element).

We can conclude that growing interconnectivity of the networked society brings with it growing complexity but at the same time brings with it other possibilities for marketing, management, organization development, research and for designing for interventions for social systems that favour long term, more complex thinking on short term, and more linear thinking. The one thing we have to learn especially is evoking the transformation in the midst of growing internal and external complexity. Rethinking the business conception from the perspective of relevance and relationships then is the essence of the imagineering approach in reframing fundamentally the processes of value creation.

The challenge of changing as emerging

Change, instead of being conceptualized in the industrial era as a mechanistic process of 'unfreezing, moving, and refreezing' and other approaches of planned change, is nowadays conceptualized as process of self-organization and emergence. Authors from around the world and across the economic and political spectra extolled the changing nature of change in human systems. Everything that sup-

ported stability and continuity of organizations is now compromised by processes of globalization, political unrest, religious fundamentalism, technological advances and growing diversity (Eoyang, 2011) and in practice the high failure rates encountered when implementing traditional approaches towards organizational transformation are replaced by methods and approaches based on insights from complexity science.

Already in the nineties of previous century complexity theory was embraced in primary organizational journals as Administrative Science Quarterly (1997), Organization Science (1999), Futures (1996) Long Range Planning (1993) and Human Relations (1999) signalling the arrival of a new scientific paradigm in the Kuhnian sense (Kuhn, 1962), not in the least in processes of organizational change. Also, at that same time a new transdisciplinary journal of complex social systems emerged with the name Emergence: Complexity and Organization.

Where classical science describes a universe of equilibrium determined by initial conditions and mechanistic laws as action and reaction, complexity theory points to a universe of non-equilibrium dynamics and phase transitions (Prigogine and Stengers, 1984) where order seems to increase inexorably: change, development and transformation take place in open systems. New science suggests that order, also strategic order (Stacey, 1993), emerges from chaos.

Nowadays it is evident that the complexity perspective offers better glasses to look at change and value creation in society than the existing industrial glasses and new entrant organizations and institutions are challenging the existing once to change the enterprise logic in order to survive and thrive. But even while there is this changing thinking on 'how to change', existing companies and institutions are struggling with the process of strategic innovation as Ramaswamy and Grouillart (2010:109) state:

> *"The new paradigm of co-creation presents an enormous opportunity for enterprises that can figure out how to harness it. Individuals are far ahead of most organizations in their eagerness to engage in co-creating value, and organizations must now respond." (Ramaswamy & Grouillart, 2010:109)*
> *"[…] it is the enterprise that is quite not there yet – whether the enterprise is a "profit.com", "social.org", or "public.gov". The co-creation movement must be seen as a journey in organizational transformation to the next paradigm of value creation – one that can lead to new growth and new sources of competitive advantage. […] Welcome to the opportunity to co-create the future of value creation!" (Ramaswamy, 2009:17)*

Let's have a look at the emerging perspective of complexity science and its interpretations in regard to change.

1.2.2 Academic implications: The emerging perspective of complexity

Growing complexity has not only its effects in practice but it also brings with it academic search for more effective thinking concerning the problems we face today. In this search growing attention has gone in the direction of complexity science, science based on the study of living dynamic systems such as the weather and all kind of other natural phenomenons in disciplines such as chemistry, physics and biology. Even while scientists already know for more than hundred years about the existence of this perspective, the development of complexity science had to wait for the computer in order to make the non-linear calculations that are needed to discover the principles and processes of this perspective. We explain how this new perspective comes to extend our worldview and how it asks for extending our thinking in coping with growing complexity in society and in organizations.

Extending our worldview
Growing complexity creates a new and unprecedented setting for as well individuals, as organizations and institutions. It raises challenges never before encountered. We are living system crises. From security, to climate, to food and water, to energy and financial markets and more, UN General Secretary Ban Ki-moon says, "we have never seen any era when we have been hit by all these multiple crisis at the onetime". Things are not just going wrong, they are going wrong spectacularly, on a global scale, and in multiple and concurrent ways. We thus find ourselves in a situation that is far from normal, and have entered what Sardar (2010), a London-based Muslim scholar, suggests to call 'post-normal times'.

In normal times, when things go wrong, we know what to do. We identify and isolate the problem, we analyze the problem and if needed, we ask experts to come up with a viable solution. But in post-normal times, in a growing amount of situations, this normal logic does not work any longer. Experts are no longer able to solve a growing amount of problems. In many cases, the normal solution-oriented logic is itself revealed to be the root of the ills. To illustrate this in practice: in the field of development and humanitarian affairs, much thinking and practice is still trapped in the mechanistic, solution oriented logic of predictability and linear causality and is executed through top-down command and control. In many cases, this logic has proven to make the situation worse instead of improving the situation (Ramalingam et al., 2008). It even brought Nussbaum (2010) to the question whether humanitarian design is the new imperialism, whether we still have the idea that we have to bring solutions from our perspective thinking that people in developing countries are not creative themselves.

But there is hope. In the meantime and in parallel, actors in the field have been experimenting with an evolutionary approach which is underpinned by complexity

science. Such an evolutionary approach articulates a contrasting world of understanding, helps to explain complex dynamic phenomena using insights and concepts like non-linearity, edge of chaos, self-organization, emergence and co-evolution and is effectuated by participation, local ownership and empowerment, an approach we like to call popularly: 'designing the other way around', not designing a solution, but designing for evolution'.

With growing complexity in society we learn that notions of control and certainty are becoming obsolete and that we have to learn to cope with what Bauman (2007) calls 'endemic uncertainty'. As we are more connected and interconnected than any other time in history, daily we discover the consequences of the growing interdependency. The logic of simultaneity in networks is now complementing and even supplementing the conventional, sequential logic of value chains, a logic that became dominant in the industrial context and shaped our thinking and acting in a 'solid' way. Now that we are all connected in networks, times become 'liquid' (Bauman, 2007): a condition in which social forms (structures, institutions, behavioral patterns) can no longer (and are not expected to) keep their shape for long and individuals have to evaluate, think, plan and act under continuously changing conditions. In order to cope with this growing complexity and to become more adaptive, we need new thinking (Morin, 2008). Let's first have a look at the way we can extend our worldview and related to this, how we can extend our thinking as this touches upon the basic argument of this study.

In fact the concept of 'post-normal' was first introduced in the field of science by Funtowicz (an Argentinean mathematician) and Ravetz (a British philosopher of science) in the early 90's. Working on the mathematics of risk, these scholars noticed that the old image of science, where empirical data led to true conclusions and scientific reasoning led to correct policies, was no longer plausible with growing uncertainty in reality. Science was no longer functioning the 'normal' way and they described these developments as 'post-normal science'. "Whenever there is a policy issue involving science", Ravetz and Funtowicz write in 1993, "we discover that facts are uncertain, complexity is the norm, values are in dispute, stakes are high, decisions are urgent and there is a real danger of man-made risks running out of control". Much of what Funtowicz and Ravetz wrote about science is now equally true for society as a whole (Sardar, 2010). As a consequence of growing complexity, chaos and contradictions, normal science and our normal mechanistic thinking and acting fall short and new science and new styles of thinking and acting prove to be more appropriate. Now is the time to explore this new field of science from a perspective of organizational design.

It is interesting to see that in every age, science is shaped around its leading problems and evolves with them (Funtowicz and Ravetz, 1993:754). In our age now, the

rise of complexity science has paralleled the increase in dissatisfaction with the traditional, mechanistic worldview (Dent, 1999). The reductionist, analytical worldview which divides systems into ever smaller elements, studied by ever more esoteric specialism which is ideal in stable environments and when working with closed systems, is being complemented and extended by a systemic, synthetic and humanistic approach that emerges from the study of living, dynamic, non-linear systems. This emerging worldview offers a new array of approaches, principles and processes in working with open, living, dynamic systems in turbulent environments, a situation which is characteristic for organizations today.

Contrary to the traditional worldview (TWV) that is based on classical science and the philosophical assumptions of reductionism, objective observation, linear causation and entity as unit of analysis, the emerging worldview (EWV) is based on complexity science and on the philosophical assumptions of holism, perspectival observation, mutual causation and relationship as unit of analysis (Dent, 1999). We will explore complexity science and its implications for social systems inquiry in depth in chapter 2 in order to see how this new science offers the possibility to adjust some of our deeply held mental models about the world and about organizations if we are to continue to grow, develop and thrive in a more complex world.

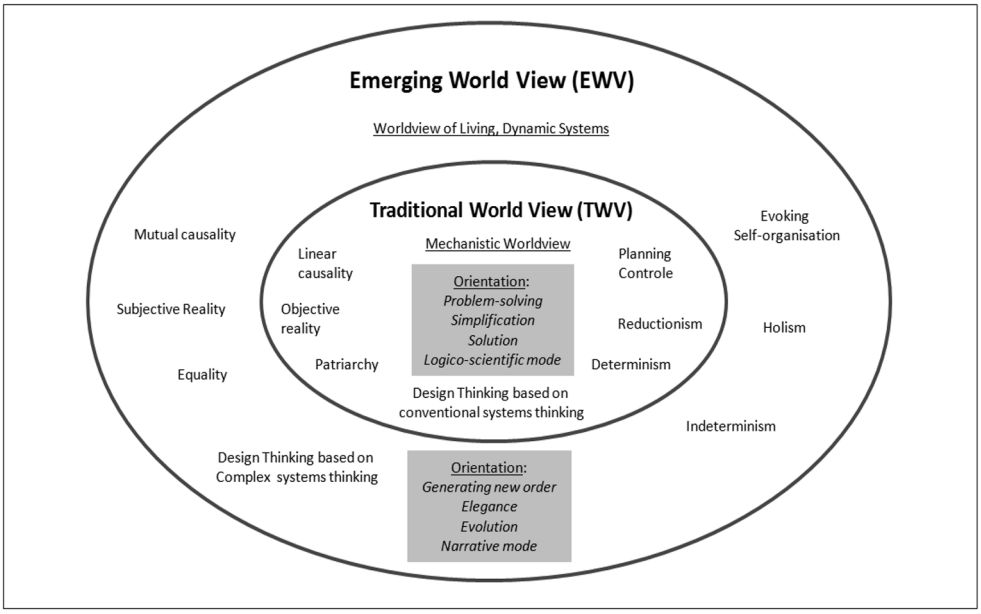


Figure 1.1 Extending our Worldview in working with Living Systems – ***Based on Dent, 1999***

What is important for now is to show how this new emerging worldview of complexity increases the visibility of lines of thinking that were already paramount in the 60's of previous century (Emery and Trist, 1965): it is "a shift from the traditional view of organizations and environments as relatively independent entities, to a new perspective that views organizations as co-creators of their (emergent) environments (Pina e Cunha, Vieira da Cunha and Kamoche, 2001). Emergence here refers to the coming into being of a sustainable dynamic state from interactive local-level processes. Translated in complexity language this idea of Emery and Trist in 1965 is about the shift from seeing organizations as closed systems towards seeing them as complex adaptive systems, open systems that live in co-evolution with their sometimes very turbulent environments.

In highly connected environments as we are living now, environmental characteristics (of organizations) are not a given but they emerge and take shape out of the interrelationships of many actors over extended periods of time, actors that also influence one another in many ways. Such dynamic environments, therefore, are inherently unpredictable. Misfit of an organization in such a dynamic, turbulent environment may not be as much a consequence of poor planning as a consequence of a lack of adaptiveness. According to Pinha e Cunha et al. (2001:26) it is a necessity that in such turbulent environments traditional strategic anticipation is complemented by mechanisms able to facilitate strategic adaptiveness. This idea of the mutual interaction between actors and environments, an idea that is also central in complexity science, is so dominant in today's organizational landscape that Pinha e Cunha et al. speak about the "age of emergence", an age that asks for a new managerial mindset in which designing for organizational emergence is central. Organizations are no longer closed systems for which the environment is a given, but they are open systems for whom co-creation and co-evolution of and with their environment is essential for survival and for flourishing for themselves but also for society at large. This is one of the new opportunities that is offered by the connected society and that is here to discover.

In such highly turbulent environments, Emery and Trist (1965:28) argue that "it is not possible for individual organizations, however large, to adapt successfully simply through their own direct actions". But they argue that there are some indications of a solution that may have the same general significance for these environments as have strategy and operations in more stable environments and that is "the emergence of values that have overriding significance for all members of the field". Social values are here regarded as coping mechanisms that make it possible to deal with persisting areas of relevant uncertainty" (Emery and Trist, 1965:28). These scholars argue further that if effective values emerge, they can act as 'power fields' that can change turbulent fields in a 'most striking fashion' into a simplified and relatively static field. They add to this that we should not forget "that values can be rational as

well as irrational and that the rationality of their rationale is likely to become more powerful as the scientific ethos takes greater hold on society". Through the embodiment of organizational values which relate them to the wider environment, organizations become institutions and executives become statesmen as they make the transition from administrative management to institutional leadership (Selznick, 1957 in Emery and Trist, 1965). As institutionalization becomes a prerequisite for stability in highly turbulent environments, the processes of strategic planning also become modified: choices will go in the directions "that offer maximum convergence as regards the interests of other parties" (Emery and Trist, 1965:29).

Seeing organizations as open systems that essentially live in symbiosis with their environment is clearly not a new idea but an idea that, as explained above, emerged already 50 years ago. But it is a perspective that is core to complexity science and as such this idea that emerged already in 'normal times' can be deepened by the scientific insights coming from the extended worldview as to enrich our understanding in 'post-normal times'. Moreover, seeing social values as essential coping mechanisms to deal with uncertainty is again an idea that is aligned with the perspective of living, dynamic systems and that asks for extending our 'normal' strategic thinking. Thinking that is reductive, disjunctive, linear and deterministic and that is effectuated in practices of planning and control, is most probably not the best suited way of thinking in coping with uncertainty, complexity and turbulence.

Extending our thinking

It is evident that our normal thinking of planning and control makes perfectly sense in relative stable environments. If organizations experience change more rapidly than they can comprehend, than that thinking falls short. Then it is not possible to keep the system stable with this thinking only. Karl Weick (1985 in Dent, 1999:10) describes the decision-making style of the TWV as rational: "Rational decision making is effective in organizations in environments that change slowly, have few social groups, and have centralized authority that worked reasonably well. Weick observes that these conditions are now relatively rare in organizations."

Johnson (1992 in Dent, 1999:11) argues that "perhaps the most useful mental model for thinking about TWV and EWV is that of polarity. Polarities are sets of opposites that cannot function well independent. The two sites of a polarity are interdependent, so one side cannot be "right" or the "solution" at the expense of the other. Many of the trends in business and industry today are polarities to manage, not problems to solve". In terms of polarities, the shift from TWV to EWV should be conceived as a shift from a focus on a single pole (the TWV) to a focus on both poles (the EWV). The graphic illustration as presented in figure 1 illustrates both views as they should be interpreted: the EWV complementing and extending the former.

But the rational style of thinking and acting that is characteristic for the decision making style of the TWV is not our only possible style of thinking. According to the cognitive psychologist Bruner (1986:11) people have "two modes of cognitive functioning, two modes of thought, each providing distinctive ways of ordering experience, of constructing reality", being the rational, logico-scientific mode of reasoning and the narrative mode of reasoning. In this study we suggest, explore and evaluate whether the narrative mode can be said to be a more suitable style of reasoning and acting in coping with the polarities that are characteristic for more complex environments as Tsoukas and Hatch (2001) claim. These scholars suggest that the narrative mode has a potential in developing second-order thinking about organizational complexity. Aligned with this thinking we argue in this study that 'designing in the narrative mode' is an interesting mode to cope with organizational complexity and that designing in the narrative mode is effective in evoking organizational emergence. To make this more concrete: we suggest that the narrative mode of thinking is more suitable than the rational mode of thinking in enabling the revitalization of an organization under highly turbulent, complex circumstances as this style of thinking invites for making interpretations in individual local situations. We call this design approach 'imagineering' as it tries to evoke self-organization by opening the imagination of involved stakeholders by making use of the narrative mode of reasoning.

According to Bruner (1986:12) "the two modes (though complementary) are irreducible to one another. Efforts to reduce one mode to the other or to ignore one at the expense of the other inevitably fail to capture the rich diversity of thought". […] "They function differently and the structure of a well-formed logical argument differs radically from that of a well-wrought story […] and the types of causality implied in the two modes are palpably different. The term *then* functions differently in the logical position "if x, then y" and in the narrative *recite* "The king died, and then the queen died." One leads to a search for universal truth conditions, the other for likely particular connections between two events – mortal grief, suicide, foul play. The paradigmatic, rational, scientific mode of reasoning attempts to fulfill the ideal of a formal, mathematical system of description and explanation while the narrative mode attempts to deal with human and human-like intentions and actions and the vicissitudes and consequences that mark their course. "Narratives don't provide explanations but rather lead to understanding" (Efland, 2002:152).

Table 1.2 Comparison of Bruner's two modes of Thought – *by Tsoukas and Hatch (2001)*

	Logico-scientific mode	*Narrative mode*
Objective	Truth	Verisimilitude
Central problem	To know truth	To endow experience with meaning
Strategy	Empirical discovery guided by reasoned hypothesis	Universal understanding grounded in personal experience
Method	Sound argument	Good story
	Tight analysis	Inspiring account
	Reason	Association
	Aristotelian logic	Aesthetics
	Proof	Intuition
Key characteristics	Top-down	Bottom-up
	Theory driven	Meaning centered
	Categorical	Experiential
	General	Particular
	Abstract	Concrete
	De-contextualized	Context sensitive
	Ahistorical	Historical
	Non-contradictory	Contradictory
	Consistent	Paradoxical, ironic

Source: Bruner (1986: 11–43).

Both modes make also use of the imagination. But the 'imaginative application of the paradigmatic mode leads to good theory, tight analysis, logical proof, sound argument, and empirical discovery guided by reasoned hypothesis' while 'the imaginative application of the narrative mode leads instead to good stories, gripping drama, believable (though not necessarily "true") historical accounts. […] It strives to put its timeless miracles into the particulars of experience and to locate the experience in time and place". As such the narrative mode of thinking has heuristic and holistic properties which makes it suitable for interpretation and exploration, activities that are essential in highly complex circumstances.

It is important to note that we see the EWV as an important extension of the TWV, one that makes our view and our thinking via the integration of the narrative mode not only more appropriate for working with living systems in highly complex circumstances but that also opens the door for the explicit integration of the internal

world of sensations, perceptions, emotions and the imagination, that constitutes an important part of life which is neglected by the TVW. The narrative mode offers the possibility to broaden our scope and gives us a broader range of capacities in working creatively and innovative with living systems. We suggest that these human capabilities are essential in generating new order in post-normal times. We like to finish this 'global context' with a quote from Morin (2008:34-35):

> *"We sense that we are approaching a considerable revolution (so considerable that perhaps it won't take place), in the great paradigm of Western science […]. What affects a paradigm, that is, the vault key of a whole system of thought, affects the ontology, the methodology, the epistemology, the logic, and by consequence, the practices, the society, and the politics. The ontology of the West was founded on closed entities […], the methodology was reductionist and quantitative. The logic was homeostatic and destined to maintain the equilibrium […]. Imagination, illumination, and creation, without which the progress of science would not have been possible, only entered science on the sly. They could not be logically identified, and were always epistemologically condemnable. They are spoken of in the biographies of great scientists, but never in manuals and treatises […] it is obviously the whole structure of the system of thought that is finding itself thoroughly shaken and transformed. […]" (Morin, 2008:34-35).*

We argue in this study that the narrative mode of thinking is not only an essential extension of our thinking in working under growing complexity but that it is also an interesting mode to design in these kind of circumstances as it enables coherence and adaptiveness.

Summarizing we can say that from the previous it becomes obvious that growing complexity in society has its effects in practice in the way it comes with growing turbulence and uncertainty but that it also comes with its opportunities of being able to create value on a global scale simultaneously instead of just sequentially. This shift offers the opportunity to rethink value creation from a perspective of relevance/responsibilities and relationships/roles. It offers the possibility to liberate the individual agents from their passive role of consumers to become co-creators in processes of value creation and it offers the possibility for suppliers to rethink processes of value creation from a shareholder orientation towards a stakeholder orientation in the emerging mode, offering all kind of stakeholders the ability to participate in value creating processes that envision a positive evolution for society at large. The emerging perspective of complexity science then offers a new perspective for thinking about change and evolution that extends our conventional worldview and our conventional thinking in coping with growing complexity.

In chapter 2 we will go deeper into the emerging academic perspective in working with organizational change and transformation and in chapter 3 we will focus more

in depth on the practical problem of enterprise logic transformation, a typical problem of 'organizational emergence' seen from the complexity perspective.

1.3 Coping with growing turbulence and complexity

Being confronted with growing complexity, traditional approaches to the study of organization development (OD), change and transformation are considered by most organizational scholars and practitioners as limited and potentially inadequate in guiding effective practice and research (Eoyang, 2011; MacLean and MacIntosh, 2011; Mathews, White and Long, 1999; Van de Ven and Poole, 1995 and 2005). There is a general agreement that conventional OD is "failing to meet the 'big' challenges facing contemporary organizations, such as transformational change and disruptive innovation" (Bevan et al., 2007:137). The fact that random discovery experimentation in OD such as the practices of appreciative inquiry and conceptual approaches like the world-café are increasingly more fruitful than paradigm-based hypothesis-driven research is another symptom of a paradigm in crisis. Yet the challenges human systems face, continue to expand in magnitude and complexity.

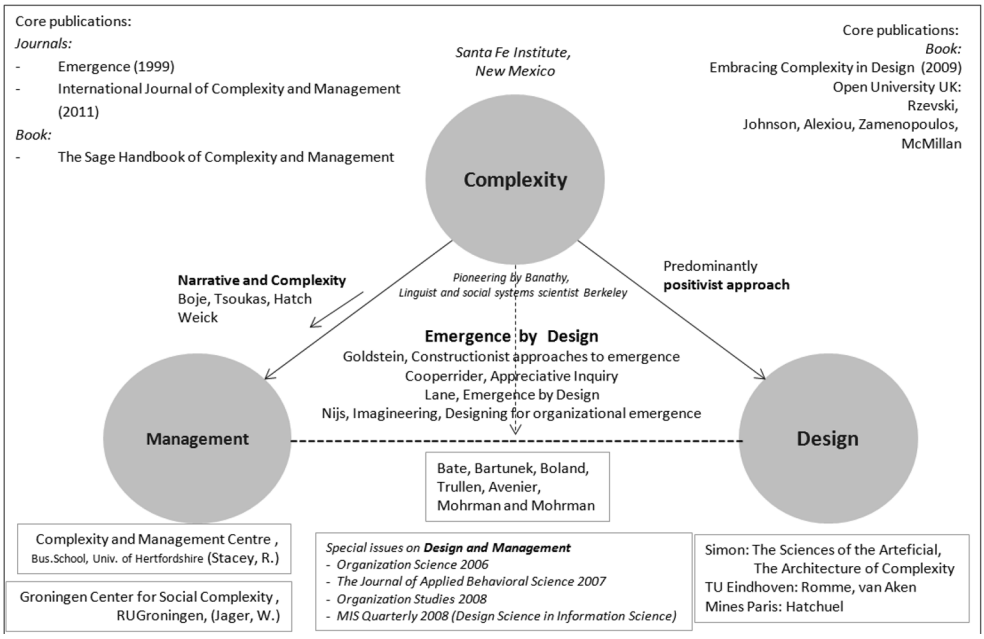


Figure 1.2 The scientific landscape of Complexity, Management and Design

To solve the change-problem while change is massively needed, organization scientists look in two directions: they look into the direction of design and more specifi-

cally into the direction of design thinking to change the game as design is perceived as having the ability to reframe existing situations, and they look into the direction of complexity science for new thinking about change in order to become more effective. But to cope effectively with growing complexity, both directions have to come together. Insights from complexity science should be used from a design perspective. So far, however, this has seldom been the case.

According to Chanlat and Hatchuel in a personal talk on the Euram conference in 2010 in Rome, very little research has been done so far in the triangle of management (change thinking), design and complexity which makes this research though but at the same time interesting.

Besides of using complexity science insights in effectuating transformation by design, this research has a broader relevance too as it offers new insights for the 'triangle' that can further design thinking in management which is definitely needed while for now, according to Johansson-Sköldberg, Woodilla and Cetinkaya (2013) design thinking in management has a rather superficial and popular character as compared to 'designerly thinking', design thinking as practiced in the design field.

1.3.1 Looking from a managerial and organizational perspective

Growing complexity is something that affects the fundamental logic of value creation. It is not something that influences part of the organization but it is something that affects all interactions and relationships and as such growing complexity as a structural shift in society asks for corporate evolution, it asks for organization transformation. Complexity science then brings a new ontological image of change on the table as being a process of generating new order 'the emerging way'. Emergence has been defined by Goldstein (1999) as *'the coming-into-being of novel, "higher" level structures, patterns, processes, properties, dynamics, and laws and how this more complex order arises out of the interactions among components (agents) that make up the system itself'*. Turning to emergence offers itself as a way to rethink organizational change and development as a process with a 'self-organizational logic'.

To stay effective, scientists should continually develop and refine concepts, models and theories. But they should also be aware of a possible "paradigm shift, the quantum leap, the discontinuity, the breakthrough innovation. These often evolve unobtrusively by offering small tibits, one at a time, until – suddenly – a tipping point is reached, then bang! Not all people hear the bang even if it is a big one. They may just note the more quiet arrival of bits and pieces but not grasp the accumulated effect of their synthesis" (Gummesson, Lusch and Vargo, 2010:8).

The problem with conventional thinking about organizational change under complexity is manifold.

First, conventional thinking about change is oriented towards restoring equilibrium and not towards embracing turbulence while turbulence can be positive and even essential for realising renewal or generating new order (to articulate it in complexity language). According to Gryskiewicz (2009:99) "probably the most important challenge a leader faces today is building an organization that continually renews itself – an organization in which creativity (the generation of new and useful ideas) and innovation (the successful implementation of these ideas) are ongoing. This challenge is heightened by the constant – many would say, accelerating – change that has been buffeting us all". Instead of walling out turbulence or eliminating it to make the organization comfortable for a time, it cuts of the sources for renewal, for using its ability to respond creatively to change. The real challenge for leaders then is to develop the ability to read turbulence and to bring it into the organization in an appropriate way as to create the condition to not only survive change but to prosper from it.

A second problem with conventional change thinking is the fact that it sees change either as being a brief episode of transformation or as a process of incremental, continuous change. It is either one of both and it can not be both at the same time. As such, change thinking does not adequately harness creativity and innovation within and among employees across the entire organization (Dunne and Dougherty, 2012). Besides of the problem of conceptualization hung up on a simple dichotomy of episodic versus incremental change not addressing the engagement in both dynamics at the same time, there are many other reasons why 'change the conventional way' is challenging such as lack of substance, or change from what to what, and why? While "the dichotomy with limited causal dynamics, combined with limited focus on actual activities means that generic change models fail to explain how to build creativity and how to foster innovation", Dunne and Dougherty (2012:570) argue that a paradigm shift is needed to cope with this problem of corporate or organization transformation.

In this context these scholars introduce the concept of 'transformative organizing' and they compare it with the conventional logic of 'bureaucratic organizing' and 'adaptive organizing'. Bureaucratic organizing is the most familiar form of organizing of the three and it is characterized by functional departments and a clearly outlined hierarchy that limits creativity and innovation to separate functions. Adaptive organizing is a complementary form of the former one in which change and innovation are continuous and incremental, structured around lateral flows of activities in which multi-functional teams in projects are staple to the organizing process. Transformative organizing then is "a model for managing organizational change

that leverages the vast literatures on creativity, innovation and change" by making use of the insights from complexity science. It is a type of organizing that articulates "a context in which change supports creativity and innovation; and creativity and innovation drive change" (Dunne and Dougherty, 2012:569).

While the shift towards complexity science 'solves' the dichotomy problem, the problem of 'lack of substance' is 'solved' by the shift in value creating logic. Enterprise logic transformation from the exchange logic to the value co-creating logic offers a frame of two archetypical logics of value creation which allows making it very clear to all involved stakeholders/individual agents from where to where the organization tries to evolve. As such, growing complexity with its shift in value creating logic in practice and its academic emerging perspective of complexity science offers an ideal moment in time to effectuate transformative emergence as to liberate change, creativity and innovation as never before (Montuori, 2011b, 2003; Montuori, Combs and Richards, 2003; Montuori and Purser, 1999, 1995).

Complex thinking about emergence and conventional change thinking are also different from one another concerning the generative mechanism. While conventional change thinking is oriented towards effectuating behavioral change, complex thinking about emergence is oriented towards changing mind-maps. It is oriented towards making people 'see' another innovation horizon as to transform the dialogue in and between people in the organization and in the broader value creating network in a more desired strategic direction. It is by bringing the turbulence in an appropriate way in the organizational dialogue (Lichtenstein and Plowman, 2009) that networks will cope with growing complexity to emerge in more appropriate directions. Dialogues make collectives adaptive to complexity. Dialogues are the generative mechanism through which an organization can transform and can keep transforming and it is leaders who should inspire the transforming dialogue in a strategically desired direction. According to Tsoukas (2009) it is through dialogues that new distinctions are made and according to him there are three dialogical mechanisms for creating new organizational knowledge:

- Dialogical exchanges with real others;
- Quasi-dialogical exchanges with imaginal others and
- Quasi-dialogical exchanges with artifacts.

It is this last route in the sense of a linguistic artifact, an imaginative dynamic narrative, which is central in imagineering and as such in this study. For an illustration, see the imaginative narrative of 'Peace Parks' and 'The Not-Invented-Here Award' in the box below.

Box 1.1 Examples of imaginative narratives

'Peace Parks': *In 1996 'Peace Parks' became the name for some originally 'dangerous' transborder areas that are now commonly managed by two or more neighbouring countries in the South of Africa. Nelson Mandela was one of the founding fathers. In the meantime there are Peace Parks all over the world. Even in the region between Syria and Israel in the Golan Heights, there is now a plan to develop a 'Peace Park'.*
The concept of 'Peace Parks' is based on the belief that peace can be enhanced by developing a rich and resilient web of relationships from local actors and governmental actors. Even when it is difficult to measure the 'peace performance' of such a soft linguistic/dialogic approach empirically, due to the abundance of factors that confound the analysis, it is said that 'Peace Parks' contribute to a culture of peace and cooperation between nations while they act as a symbol of ongoing cooperation, by creating an entry point for discussion and changing behaviour 'the self-organizing way', increasing security and control actions and by creating shared opportunities for development and post-conflict reconstruction (Hammill and Besancon, 2007).

*'**The Not-Invented-Here Award'** is another example of how a small interventions can realise sustainable organizational change making use of the mechanism of self-organization instead of using conventional change plans. At Raychem, a corporation in the business of technology-intensive products for industrial customers, they realized that effective communication is crucial in realising change but that it doesn't comes easy. "One of the problems with people at the cutting edge of their field is that they don't think anyone can teach them anything. That's why we started a "Not Invented Here" award at Raychem. […] We give the person who adopts a new idea a trophy and a certificate […] the person who had the idea, also gets an award." (Taylor, 1990:102). If you ask people to communicate with one another, to learn from one another and to build on one another's ideas, they won't. But if you design a small mechanism that invites and celebrates the smart ones who do so, the whole organization starts to change.*

Because of the design of an artifact, we call the Imagineering method a 'design approach', a complexity-inspired design approach to effectuate organizational emergence by evoking collective creativity. The artifact is essential and continuous in inspiring the dialogue but the dialogues inspired by the artifact also include the two other modes of dialogue: the dialogue with real others and the dialogue with imaginal others.

Even while dialogues are the generative mechanism of the 'self-organizing logic' of emergence, these mechanisms are less self-organizing then they might sound. They are most probably always initiated by leaders, sometimes unconsciously, or they are initiated by artifacts or both and it is this last mechanism, the design of artifacts with transformative potential that is central in this study. Whether using leaders or artifacts or both, design is definitely needed to evoke the dialogues that can steer

the transformative interactions in the strategically more wanted direction. Without design, without framing and the dialogues this framing evokes, no organization transformation will be realized.

Initiating emergence, the self-organizing way', however, we still have to discover the most fundamental principles, dynamics and processes. To illustrate this very practical: Wikipedia did not emerge by itself but was launched in 2001 by two entrepreneurs, Jimmy Wales and Larry Sanger, who envisioned an imaginative construct or artifact (Wiki-pedia, being a portmanteau word of wiki (a type of collaborative website, from the Hawaiian word wiki, meaning 'quick') and encyclopedia) with which they were able to appeal and still appeal to the imagination of involved stakeholders in a way that they can see their own as well as the collective value of the envisioned goal and that they are willing to contribute to that goal by doing something 'the self-organizing-way'. These two entrepreneurs were able, so far, to steer the dynamics of this collective process in a way that it became a sustainable project and organization (with all the difficulties they sometimes remind us off when asking for payment to keep the process viable).

It is these kinds of dynamic constructs that make possible 'the reflective conversation with the material of a situation' (Schön (1978:31 in Tsoukas, 2009:167). The designed artifacts function as 'epistemic objects' (Knorr Cetina, 2001:181 in Tsoukas, 2009:167). Designed in the method of imagineering in the narrative mode of thinking, these artifacts have "an ambivalent ontological status as knowledge carriers – they are both stable and mutable entities; they incorporate given knowledge and manifest knowledge-in-the-making (Bechky, 2003:729 and Preda 1999:353 in Tsoukas, 2009:167).

"Although the connotations of self-organization have provided a corrective to the outdated belief that novel order in a system can only come about through the imposition of external order", insights from complexity science reveal that the emergence of new order is more appropriately constructed rather than self-organized as such (Goldstein, 2003, 2005). According to Goldstein (2011) there is now an urgent need to assess the varied constructional approaches that are possible to guide organizational emergence as to make it possible to design consciously for emergence instead of relying solely on 'good luck and intuition' which we did so far as the whole of humanity emerged the way it did without knowing consciously how we can orchestrate this kind of processes in a, for society, (more) desirable direction.

There is an urgent need to develop this know how to design consciously for organizational emergence as to optimize the way in which we create value and realize change in society at large as many complex problems in society are in big need to cope with them in a better, more sustainable way now that our conventional

approaches of planning and controlling fall short and this new opportunity presents itself as a consequence of growing complexity with its growing connectivity.

Box 1.2 Illustrating the use (and missed opportunities) of imaginative narratives in the banking industry

In the **banking industry**, an industry in which the generation of new order is very much needed, we can see as well good examples that make use of the self-organization logic (for example **Triodos-bank** in the Netherlands is communicating with 'Small the new big') as missed opportunities as for example in Belgium:

Renaming is a costly operation for any organization. But it is also a tremendous opportunity to generate new order 'the self-organising way', an opportunity that should not be missed. As such the re-naming of the Dexia-good-bank in ***'Belfius'*** *(Belgium+Fidelis+us) and the new name of* ***'Crelan'*** *for the merger between Centea-bank and Landbouw-krediet can be judged as 'missed opportunities'.*

In both situations the necessity for re-naming was an opportunity to generate new order by appealing to the imagination of the individual actors to enable self-organization in a more relevant direction for society at large. But in both situation the opportunity to generate such a new order is missed by just choosing a new 'fancy' name that misses any clue for changing behaviour from whatever stakeholder that is willing to help change the logic in the banking industry by becoming or staying a customer of a 'more relevant bank'. Even more, seen the problems of Belfius, the Belgian public is condemned to suffer from this 'missed opportunity'.

In both cases the management did not realise that the costly process of renaming was an enormous opportunity to generate new order, an opportunity to orchestrate an emerging process of self-organization in an industry that barely needs innovation.

1.3.2 Looking from a design perspective

In the midst of growing complexity and confronted with the limited effectiveness of conventional academic change-thinking, organization scientists started to look also into the direction of design. So far, however, most of the design knowledge is developed using conventional systems thinking and not complex systems thinking. Also in a recent critical overview on design thinking in both the field of management as in the area of design, Johansson-Sköldberg, Woodilla and Cetinkaya (2013) don't mention complexity science as an alternative to use in working with living systems such as organizations.

Conventionally design is embedded in the implicit or explicit assumption that systems behave in predictable ways. This type of thinking is dominant in designing for

physical systems but often also in designing for human systems. As long as systems respond in predictable ways, there is no reason to challenge this assumption. But often this is not the case: as already mentioned while central in this study, our world is becoming more complex every day as a consequence of growing connectivity, interdependency, diversity and interactivity with far reaching consequences not in the least for social systems. To cope with growing complexity in human systems, we need new design methods and practices. This study argues that instead of designing solutions, we should design for evolution. We should learn to design for organizational emergence. While humans are agents, different from other agents in natural living systems, that are able to use the imagination and creativity in processes of emergence. This is a real opportunity in working with human systems but it is an opportunity that we still have to learn to design for.

Recently designers start to explore the use of complex systems thinking in doing design work, for example in the (industrial) design departments of technical universities such as The Design Group at the Open University in the UK. At the technical universities the use of complex systems thinking seems to have led to predominantly studies in mathematical and computational complexity as for example in the context of artificial intelligence. In the social sciences there is even less experience with design in general, let alone with using complexity science as the resource for doing design work. There is research in the social sciences making use of complexity science as for example at the Complexity and Management Centre at the University of Hertfordshire and at the Groningen Center for Social Complexity but in both centers the work is predominantly done in the explanatory paradigm and not in the design paradigm. Nevertheless, every day it becomes more evident that organizations and society are in big need for reliable design knowledge to be able to cope more effectively with the growing amount of complex problems (Romme, 2003; Mohrman, 2007).

Seeing organizations no longer as mechanical systems but as living complex adaptive systems, change is no longer necessarily gradual and proportionate but can be radical transformational, even as a consequence of small events (Walby, 2007). Complexity theory emphasises the importance of non-linear change: Small changes may have large effects and "changes may be sudden, akin to processes of saltation, as a moment of crystallization of a new structure and form" (Walby, 2007:464). Especially the study of dissipative systems (Prigogine, 2004, 1980, 1955; Prigogine and Stengers, 1984; Nicolis and Prigogine, 1989) offers social scientists a new way of looking at society, one that promises to profoundly alter how we think and act concerning organizing (Reed and Harvey (1992) not in the least as social systems designers (Banathy, 1996; Jantsch, 1974; Jantsch, 1975; Laszlo, Laszlo and Dunsky, 2010; Weick, 2004, 2011; Johnson.2010a, 2010b; Blecic and Cecchini, 2008; Hazy, 2011).

Change in social systems can happen spontaneously, like it also happens in natural living systems. But this study argues that different from all other systems, these changes can and should also be designed for in human systems. Evolution and design, the course of nature and man's intervention in it, these are notions that seem to clash in Newtonian, linear, dualistic thinking: "Human action is usually set off against all other movement in the universe" (Jantsch, 1975:xvi). Not so in complexity thinking: Complexity thinking puts this relationship in a whole different light. In Newtonian logic man is the observer, dominating and calculating closed systems which he is able to predict in a world that can be known. Design in the Newtonian logic typically happens by excluding part of the bigger picture.

In complexity science "the evolution of mankind forms a meaningful and integral part of a universal evolution". In this complex worldview "mankind is an agent of this universal evolution, and even an important one" (Jantsch, 1975:xvi). Designers in this paradigm realise that they are part of the bigger picture and that the rules of the game are fundamentally different. For example: that design for evolution is more a matter of the micro-processes related to macro-processes than that it is a matter of the macro-processes as such. The biggest challenge most probably is, quoting Morin (2008:8): to "reintegrate humans with nature and […] distinguish humans from nature, thereby not reducing humans to nature". Humans have this unique property that they are able to imagine a better future and that they are able to communicate about it in an imaginative way. In the design approach of imagineering we suggest that it is possible to translate a strategic direction in interactions in micro-processes and that, when we are able to translate these micro-relationships in the design of an appealing linguistic construct, we can evoke the generation of new order 'the self-organizing-way'. If we are able to make this translation we can realise transformation by design.

To address the complexity and challenges of today's organizational environments, expectations are high concerning the combination of organizational design (OD) and design science. The combination is seen as critical to provide a knowledge foundation to build organizations that are sustainable and meet the needs of their stakeholders. This requires a broad attention to management as design, design thinking in management and to the development of an organizational design science to provide content and methodological knowledge to guide the organizational design processes (Mohrman, 2007). The journey to an organizational design science is just beginning and it is not evident at all how decades of research done in the explanatory paradigm can result into pragmatic design principles, let alone integrating in this design orientation the shift from the linear to the non-linear paradigm. New research in the design paradigm has to be conducted. Research in the explanatory paradigm consists in essence of the activities of discovery and justification, while research in the design paradigm consists in essence of the activities of building and evaluating (March and Vogus, 2010).

Improving organizational adaptability is suggested by Maguire (1999) as being a design problem: adapting is not a random search among new possibilities of organizational functioning but a matter of design. It is a matter of understanding the current environment and knowing diverse options among various combinations of organizational processes to construct a strategy. But the way the design problem is solved, depends on the conceptualization of change in organizations. For design it makes a difference whether change is conceptualized as a process that can be planned and controlled in a linear way as in conventional, Newtonian logic or whether change is conceptualised as a self-organizing process that can only be evoked as seen from a complexity perspective.

The design challenge for OD is important as Mohrman (2007:21) articulates: "How can organizations deal with relentless change and ensuing complexity and at the same time contribute to community and human well-being?" The intention is to develop "knowledge and capabilities to design and redesign the social systems that play a critical role in shaping the lives of most people". It is obvious that organizational designers must do a much better job of understanding and crafting the processes through which organizations can change and adapt seen the formidable challenges facing our small planet and its inhabitants (Mohrman, 2007). There is an urgent need for "better" and more effective theories, approaches and methods.

Every year this evolution of growing complexity in society becomes more manifest as is our impotence to cope with it effectively by turning new, emerging opportunities in our advantage to realise sustainable change in society. New phenomena such as The Arab Spring and Occupy Wall Street, show that there is an emerging opportunity, an enormous mechanism once we will know how to use it consciously in strategically wanted directions. According to Goldstein (2011, 2012) and other complexity scholars such as Lichtenstein, Plowman, Goldspink and Kay, there is an urgent need to assess the constructional approaches that are possible. This study presents and evaluates such a constructional approach, the approach we call imagineering.

1.3.3 Accepted thinking that this study challenges

This study challenges conventional thinking in three ways:

- It challenges the evidence with which design thinking makes use of conventional (linear) systems thinking in working with problems in social systems (see explanation in the text above);
- It challenges the belief as articulated by Dunne and Daugherty (2012:580) in the creativity and innovation literature that "transformative organizing may not be appropriate for organizations in all types of industries". In this study we suggest that it might not be as appropriate in all industries but emergence can be enabled in every organization in a strategically desired direction. And with

growing complexity this might be a transformation to be made by all organizations in all industries even while we agree that the effectiveness might differ between organizations and between industries;
– We also challenge the assumption that self-organizing communities and emergence can only be enabled around knowledge objects.

The two cases that are central in this study, the non-profit one of the City of Antwerp and the profit one of the retail chain Veritas, challenge this thinking but to inspire the reader for the subject of this thesis, we illustrate this statement in a very practical and fast way as to give the reader a first impression of the imagineering design method articulated already in the three iterative phases of inspiration, ideation and implementation. In chapter 4 the method will be presented in depth.

Box 1.3 Does McDonalds needs transformative organizing?

One can ask whether companies such as McDonalds need innovation or transformative organizing. The work in such companies is very routine. But they do need innovation at the top, maybe not in every restaurant.
In this study we argue however that it is very well possible to enable creativity in the whole of the organization and to do so in a strategically desired direction as to make the company more successful in turbulent times.

We take McDonalds as an example as they are typically framed in the industrial logic: by name, while McDonalds is the name of the founding entrepreneurs, a name choice that frames the company explicitly in the producer/consumer relationship. (Imagine the success of Facebook when it was named after the founder Zuckerberg, for example The Zuckerberg Corporation.) But also by business conception as the core of the business is the well-known uniform (industrial) restaurant system. We take this example also explicitly while the one-liner the company uses at the moment ('I'm loving it') is a typical example of a marketing statement. Using this space in the logo with a marketing purpose inhibits the possibility for using that 'space and frame' as an organizational development frame that ignites and frames collective creativity and value co-creation.

We challenge ourselves to reframe value creation in the emerging mode as to make the organization more successful and sustainable, by making it more relevant and more adaptive (more creative and innovative) in today's turbulent, networked environment. Therefore we immerge ourselves in a design process of the conventional three steps and we will use as well insights from conventional systems thinking as insights from complexity science (for a more elaborate explanation, see chapter 4) in every step.

In step 1, in the inspiration phase, the orientation is on discovering the generative field that is strategically most relevant to co-create value with all kind of stakeholders. This, of course, is a highly strategic exercise and in fact not possible to do as an outsider from behind the desk. So, this illustration attempts only to clarify the way of thinking and nothing more than that. The exercise is more future-oriented than problem oriented and the question is in what way could McDonalds be most relevant to society at large? This can take much direction but whatever the choice made, it will bring positivity to the organization to replace the objective orientation, objective at least to the majority of the employees and customers, on shareholder value or profit. The choice for the strategic direction has to be made with an internally composed strategic design team in which stakeholders of all levels can participate as long as they are interested in taking the lead in the orchestration of change. As strategic possible directions for McDonalds, one can think of 'Food safety for Healthy living', 'Fast food, the healthy way', 'Food and Fun, the American way' or another strategic direction that is judged as being strategically relevant. All strategic principles are valid in evaluating the strategic direction such as unique corporate advantages (location, infrastructure, unique selling proposition) complemented with the criteria of 'relevance for society' and 'being suitable for co-creation' (offering the possibility to liberate customers from their passive consumers role and offering them the possibility for an attractive, fun, and relevant active micro-change in behavior). As with all strategic choices in a transparent society, it is of utmost importance that the strategic direction can be implemented in a true and transparent way. Methods that can be used in this phase are presented in chapter 4.

In step 2, the ideation phase, the chosen strategic direction with its micro-interpretations is translated in an evoking (poetic kind of) artifact. So, the question here is to translate the chosen relevant strategic direction of 'Food safety for Healthy living' or 'Food and Fun, the American way' in an artifact that will inspire and enable the dialogue as to change the micro-relational behavior. What can employees do in the daily interactions to make the strategic direction come alive? And further, how can employees in all departments make this direction come true? What about the buyers of food, what about the marketing-department, what about human resources and so on. At this moment in the design process this is only a matter of discovering the richness (Weick, 2007) of a strategic direction while the intention is that the translation of the strategic direction in an appealing narrative, integrated in the logo, will open the imagination of all involved stakeholders in a never ending process of creativity and innovation. An effective artifact will appeal to the imagination of local employees, local customers and local or international entrepreneurs to join the chosen, relevant strategic route of McDonalds.

In step 3, the implementation phase, the dynamics of dissipative structures (regular fluctuation, re-combination, positive feedback and stabilization) will be taken care of. For now we keep the explanation limited but essential is the fact that the organization starts to operate as a more open system that makes use of the creativity of internal and external stakeholders to behave entrepreneurial and keep fascinating as to generate a sustainable business by integrating the imagination (inspiration, creativity and fun) of the involved stakeholders in the daily 'routines' and making this dynamic operations core to the identity of the business.

We suggest in this study that even for organizations such as McDonalds, the opportunity is there to become a more open organization that is able to integrate collective creativity and innovation in a structural way and that not using this opportunity should be a conscious choice instead of an unknown alternative. The industrial exchange logic keeps value creating processes oriented towards shareholder value and keeps customers locked in the industrial passive role of consumers. This definitely has its opportunities too. But we dare to challenge the thinking that transformative organizing is only appropriate for some industries, especially the knowledge industries. It is our conviction that growing complexity is a truth for all entities in society and that coping with growing complexity asks for opening up the entity/organization for simultaneous, co-creative value creation. We agree that there might be a continuum from very standard, closed, industrial ways of operating to very creative, open, knowledge driven ways of operating but we suggest that growing complexity might challenge them all towards transformative organizing.

We suggest that this structural shift in value creation: superposing the simultaneous mode of value creation on the conventional sequential mode, is an interesting moment in time to shift also our logic of strategizing: seeing strategy no longer predominantly as planning and controlling but seeing it as framing and jamming in the first place. From a complexity perspective, the problem of enterprise logic transformation is a typical process of organizational emergence. It is not about ordinary change but about an evolution of the organization towards a more complex and more open level of functioning, a level of functioning that takes into account a much broader picture of relevance/responsibilities and different roles and relationships. As such the problem of enterprise logic transformation is judged by us as being a very suitable problem to explore whether the method of imagineering is an effective design method to realise organizational emergence.

1.4 Research on 'Emergence by Design' and the genesis of this study

Currently society is facing a grave meta-crisis which seems extremely difficult to resolve or even to survive unless we are able to develop new design methods that allow us to innovate faster and in more desirable directions with as many stakeholders as possible in the midst of an accelerating change in our world. At the moment there is one foundational research (academic thinkers combined with practitioners) now sponsored by the European Commission: 'Emergence by Design' and is scheduled from 2011-2014. It is a research project under coordination of David Lane, complexity scholar with a background in statistics, who is attached to the Santa Fe Complexity Institute in New Mexico. From the Netherlands 'Nederland Kennisland' is involved in the research consortium as one of the practitioner participants responsible for the evaluation of two civil projects: 'Education Pioneers' and 'Green Communities'. The research of the consortium is oriented towards 'the mobilization of civil society to construct a socially sustainable future'. We first discuss this European research in order to present our own research by comparison with this one.

1.4.1 Emergence by Design

According to Lane et al. (2011) we have to realise that it is our existing thinking about innovation that brought forth this meta-crisis with the financial crisis, the climate crisis, the natural resource depletion, the obesity epidemic and so many other critical situations. Now it becomes obvious that the 'Innovation Society ideology' had a too limited focus: it focussed in a very linear way on only three outcomes for innovation processes: new artifacts, jobs and economic growth and it neglected the systemic focus of the much needed emergent transformation in social organization and attribution (Lane et al. 2011). Today's crisis is endogenous to the way our society organizes its innovation processes which is based on modern science thinking. But there is hope as the 'new science' of complexity (science that is underpinning the EWV), science based on the study of living dynamic systems, is offering a fresh perspective on especially the field of change, innovation and transformation. It offers a new resource of processes, principles and mechanisms as to complement the existing resource that materializes conventional systems thinking in doing the design work with regard to innovation in open living systems such as organizations.

In modern research (research and science that underpins the TWV) invention, innovation and entrepreneurship (to which Wentzel (2006:13) collectively refers to as 'imagineering') have largely been neglected in the social sciences and in the humanities for all kinds of reasons. Our thinking was more oriented towards value capturing than towards value creation. One of the reasons for this superficial treatment of 'imagineering' in modern research is the fact that modern scientists prefer to study phenomena that can be placed within mathematical models and invention and

entrepreneurship typically do not fit well in such models (Barreto, 1989 and Magee, 2000 in Wentzel, 2006). Another reason for this superficial treatment of imagineering according to Wentzel (2006) is the fact that especially invention is not seen as so important. Therefore it is often treated as exogenous to the analytical system. While neoclassical theories are based on the notion of general equilibrium, they have no place for any kind of change (Loasby, 2001, 2005). 'Even if it admits the possibility of imagineering taking place, it regards it as a black box' (Wentzel, 2006:17).

The opposite is true for complexity science and complexity science research: instead of being based on the notion of general equilibrium, complexity science is based on the notion of change and especially emergence challenging traditional disciplinary assumptions and boundaries in working with open, living systems. The idea of viewing social systems as complex adaptive systems, taking serious their status of evolving products of evolution constitutes a major shift in our thinking which according to Maguire, Allen and McKelvey (2011:2) "will have impacts on society as great as those of the Enlightenment, when reason and rationality led to the development of much of modern society and classical science. […] A complexity perspective provides a scientifically grounded basis for accepting that sometimes seemingly small and inconsequential local events in a system can be amplified to cause global change. It provides a scientifically grounded basis for accepting two paradoxical forms of wisdom. Individuals can change their worlds through their interventions, but their agency must be reflexive and respectful of the complexity of the system in which they are embedded. Both the dream of omnipotence and the nightmare of impotence in a fully knowable but deterministic world dissolve with complexity science, which in many ways represents an important cultural awakening".

Increasingly this perspective is taken up by management scholars and practitioners in business, government and non-government organizations. And research, as well foundational as practical (often in combination with one another) is being done to explore and understand human organizations focussing primarily on how order is generated in the first place as complexity science offers a scientifically anchored foundation to study the mechanisms at work in invention, innovation and entrepreneurship and not just the consequences and context as was the case in modern research. Besides of our own research that is oriented towards designing for organizational emergence, designing for effectuating processes of emergence in existing companies, the research of Lane et al. (2011) is oriented towards designing for processes of emergence in a societal setting.

In choosing their research approach the researchers in this consortium start from the assumption that in today's Innovation Society ideology innovation policy is a high priority for governments but the researchers don't expect politicians to bring the much needed change as their discourse is mostly limited to making a choice

between different strategies to pursue. Their discourse does not address two essential questions: the first one being how to organize (reactive) innovation processes as to be able to detect potential negative effects at an early stage and the second, even more fundamental, one: how to organize processes of innovation pro-actively in order to steer innovation 'cascades' in socially positive directions. While these are essential questions the researchers believe that the leadership in designing and initiating such a process will be provided instead by civil society.

Civil society organizations are defined in this research as, contrary to state organizations, 'having no recourse to force to induce individuals and organizations to participate in the processes they initiate and unlike market organizations, the primary directedness of a civil society organization cannot be the pursuit of profit'. Civil society organizations, as meant in this research, can take many forms such as professional associations, charities and foundations and think-tanks. The researchers admit that the boundaries between state-, market- and civil society organizations can be quite fuzzy but they expect it to be a necessary categorization as they evaluate this kind of organizations to be crucial in reorganizing innovation processes by inducing them with socially sustainable innovation dynamics. They see for example agents of post-marketing surveillance (pms) processes (for example agents who emerged in the wake of the Thalidomide tragedy who were essential in evoking the significant changes in drug policy processes) and DIPO's (Distributed Innovation Policy Organizations such as 'Education Pioneers' and 'Green Communities'), meso-level organizations that enact policies at the micro-level, as essential agents in reconceptualising innovation policy.

The working mechanism in both these structures, the pms-inspired macro-level systemic innovation policy model and the micro-level DIPO model, is the capacity of these initiatives to keep generating ideas and interpret situations in networks of social innovators/innovating agents to decide what to do next. They enable a distributed, rather than a top-down, approach to innovation policy and as such allow for adaptation of processes and organization instead of being turned over to an end structure and an end result that might be totally destructive for some stakeholders.

1.4.2 Designing for organizational emergence

In our own research we start from a complementary assumption: we assume that working mechanism and organizational structure are not necessarily connected with one another. We assume that it is feasible to develop the 'working mechanism' for processes of emergence, in existing organizations, governmental as well as commercial. We suggest that this is the case while growing connectivity creates the context in which the logic of value co-creation is enabled in society and that as a consequence all kind of stakeholders can become participants in value creating

processes as long as organizations or institutions start to enable this kind of processes in a relevant and attractive way. Even more, we assume with Sheth and Uslay (2007) that this feature of openness and transparency of the connected society is a driving force in making the economy more oriented towards sustainability and relevance for society at large while this same feature of openness enables all kind of stakeholders to act and react in case their interests are damaged.

Our own research started in the creative industries and at the turn of the century we were challenged by managers from other industries to explore what the imagineering design method could mean to their industry and their organization. The cases we present and evaluate in this study are exemplary for the use of the imagineering design method in the 'not-creative' industries.

We explain the genesis of our study and the way we translated the use of the imagineering design method to making the 'non-creative' industries creative and innovative in facing growing complexity in society.

Genesis of the study in the creative industries

Working within the creative industries as an academic practitioner, both studying crucial mechanisms as experimenting with them in practice in the nineties, it soon became evident that central in entrepreneurship in the creative industries is the ability to articulate 'magic'. Its interesting to see that even while 'magic' is not an academic word, the word is also used by physicist Doyne Farmer of the Santa Fe Institute of Complexity in talking about emergence as he says: "It's not magic...but it *feels* like magic." With this quote he mentions that in complex systems such as for example the economy, macroeconomic phenomena emerge from micro-scopic interactions of individuals and as such rather small differences in those micro-scopic interactions can emerge into big shifts in society which is not magic but which might 'feel like magic'.

In a very comparable way, we experienced 'magic' in the creative industries as sometimes one conceptual creation such as 'Harry Potter' or 'The Beauty and The Beast' or our own creation 'KetnetCool***' emerged into an (relatively) impressive world and business. In Hollywood this 'magical conceptual creation' is sometimes called 'a high concept'. It is a (new) fascinating perspective, mostly articulated in the non-rational, narrative mode, which appeals as well to the imagination of the creative team, of the marketers as of the big audience. It is a construct that establishes an infrastructure that encourages and inspires effective improvisation by people responsible for emergent work processes.

Box 1.4 'High Concept' as a central operating mechanism in the movie industry

'High Concept' is a short narrative, easy to communicate which joins the aesthetic and the commercial potential (Wyatt, 2003) to bring forth a new (fascinating) perspective in society.
Steven Spielberg puts it this way: "'If a person can tell me the idea in 25 words or less, giving me goose bumps, it's going to make a pretty good movie.' I like ideas, especially movie ideas that you can hold in your hand." Peter Guber, president of Columbia Pictures Entertainment, defines 'High Concept' as 'a narrative which is very straight forward, easily communicated, and easily comprehended. Michael Eisner, creative executive at Paramount and CEO of Disney afterwards, called it 'a unique idea whose originality could be conveyed briefly'.
A 'High Concept' is significant in two ways: through the initial 'pitch' for the project, and through the marketing, the 'pitch' to the public. A 'High Concept' has it all: The LOOK of the images, the marketing HOOKS, and the reduced (BOOK) narratives. The high concept is the start from which 'business' can emerge: people start to design the movie, the marketing, the merchandise and other business extensions (such as a ride in the park or a book and a game). In some cases the high concept can result in years of work for many people. At the Disney Company the imagineering department is the core of the business and core to that department is the development of 'high concepts'. One of the mayor challenges of that department is stopping the development of concepts that won't make it, concepts that can be creative but miss the associative power.

In this thesis we suggest that it is the 'high concept' that functions as an adaptive tension in effectuating emergence in human systems by evoking collective creativity. We suggest that it is these 'magical conceptual creations' that are central in emergence in the creative industry as they establish new perspectives in society. This suggestion materializes the curious thesis of Potts (2011:5) (the winner of the Schumpeter Prize in 2000, together with Brian Loasby) on the importance of the creative industries from the perspective of evolutionary economy.

As an evolutionary economist Potts (2011) argues that the creative industries are "a much underappreciated part of the explanation of long-run economic growth and development". At first sight it is indeed hard to believe that industries devoted to seemingly superficial domains as media, fashion, craft, design, performing arts, advertising, architecture, music, film and television, games, publishing and interactive software can possibly contribute to the deep and serious pathways of economic growth and development. But what creative people do in essence is bringing new perspectives to society that can evolve into new behavior of individuals and, on the longer term, this can generate new order in society when masses of individuals together decide to change behavior.

Creative people are essential in this context while they are able to reset the definition of 'normal'. Without resetting the normal organizational or societal evolution can't occur. Seen the many precarious problems we are facing today, now more than ever there is an urgent need to reset the normal in many industries and situations while no evolution or emergence will be initiated without a new perspective. It is by offering a new perspective and by articulating it in a dialogical mechanism that new creative interpretations can be made and creative ideas can be building upon one another. Just like new perspectives can evoke this kind of emerging processes in the creative industries, so too can new perspectives evoke this kind of emerging creative processes in organizational or societal settings leading to business innovation and transformation or leading to social innovation or transformation.

What is new in this study in regard to previous work on for example creativity and evolution and art and organization transformation is the fact that work in this area, so far, was predominantly oriented towards explaining the relationship between both phenomena. In this study we put one step forwards in this field by exploring while we evaluate here whether the design approach of imagineering which we originally developed for creative entrepreneurial work in the creative industries, is also effective in evoking emerging processes in the context of organizational transformation. We suggest that designing in the narrative mode, designing 'magical creative constructions' are not only effective in evoking emerging processes in the creative industries but that in the creative economy this mechanism has a more general applicability as for example in organization transformation. According to our experiences it is applicable in all situations where evolution should be realized by the creative interpretations and actions of involved stakeholders.

As such our research started originally in the creative industries where it was oriented towards the competency to conceptualize and articulate new perspectives and the criteria for designing successful artifacts. We called this competency 'imagineering' as successful artifacts are the once that 'move' people by appealing to their imagination in order to make them think, participate or co-create in the envisioned creative industry settings. A 'high concept' or an 'imaginative narrative' ignites and frames an experiential world by resetting 'the normal' as to enable creative interpretation (collective creativity) by teams of employees in an envisioned direction. In the connected society this mechanism of igniting and framing collective creativity by designing perspectives in the narrative mode, could be extended outside the own company as to enable also external stakeholders to think, participate or co-create when they judge it relevant to do so.

With growing complexity in society and shifting value creating logic, it can be said that some companies who operated too much as closed systems, became dysfunctional and there the search started for new enterprise logic. Our experiences in the

creative industries brought us to a perspective to make value creation more relevant and more participatory as an alternative approach to the existing logic of 'exchange' with its conventional, seldom questioned orientation on shareholder value. By experimenting with redesigning the business conception from this perspective of relevance and relationships and by integrating this redesigned business conception in an appealing way in the identity of the organization, we soon discovered that it inspired creative thinking in the first place of the employees. Soon after, it became evident that it also inspired ideas for co-creation by external stakeholders.

Redesigning the business conception of an industrial organization as if it was an invitational title for a movie with as well a focus on the strategic orientation as a focus on the micro-interactions, brought with it a transformational way of working with a very positive effect on as well the atmosphere as the business perspective of the organizations. In this study we present the imagineering design method and we evaluate it on its effectiveness in effectuating organizational emergence: making organizations more able to function in a more complex environment by inspiring and encouraging continuous discourse with and between potential participants, by blurring the boundaries between those inside and outside the organization and by enabling to play an orchestrating role in a relevant value creating network (Majchrzak et al., 2006).

As such this study offers a new way of looking at creativity, especially collective creativity from the perspective of organization science and more specifically from the perspective of organization transformation. It presents and evaluates a design method for effectuating organizational emergence by setting free and enabling the creativity of involved stakeholders of an organization while transforming from the industrial exchange logic of value creation to the networked logic of value co-creation. Central in the method is the design of an imaginative narrative, a linguistic element, that, integrated as a tagline in the logo, functions as an adaptive tension engine in generating new order 'the self-organizing way' in a strategically desirable direction.

We are convinced that there is an important opportunity for organizational designers to participate in a profound political and economical change in the direction of a more ecological society. An ecological society differs from today's democratic society in the way that it functions also bottom-up, holistic, imaginative and co-creative. This research suggests that an organizational design method called imagineering as a kind of meta-design method that enables others to become co-designers of their own future, can be an interesting method to realise a more ecological society.

1.5 Research problem, questions and assumptions

To summarize the essence of this study from the macro-perspective in one statement: this study is about *'designing small interventions to realise big effects in social settings' or* else, in complexity language*: The* central focus of this research is about *'generating new order in human settings'.*

But as this perspective is too broad for this study, we focus in this research on the specific problem of enterprise logic transformation as this possibly will give us a first understanding of designing for organizational emergence. We now discuss research problem, research questions and research assumptions.

1.5.1 Research problem

Because of the demonstrated competency to ignite emerging processes in the creative industries, we were asked by the Antwerp strategic agency (LDV Bates) to assist them in their work with a few problematic accounts. The assumption was that what works in the creative industries might possibly work more generally in the creative economy. Together with the Strategic Director of the agency we assumed that a more participatory way of value creation could be a more promising route for the problematic accounts than the conventional one-direction advertising way which was clearly no longer effective for them. A more participatory way of value creation however asks for a clear focus on value creation that is relevant for the individual agents and if possible, also for society at large. The whole idea was about creating more loyal customers by making them one way or other active participants in the value creating processes.

This became the start of experimenting with the, at that time, problematic account of Veritas, the retail-chain, and afterwards, with the city of Antwerp. More accounts followed but soon after it became clear that what seemed to be a good approach for the problematic accounts became a problematic approach for the existing business model of the strategic agency itself. The problematic accounts became more vital in the following years but as they no longer relied on conventional exposure as offered by conventional strategic agencies, the agency decided to stop with the experiments and to continue the conventional way. While this was a strange turn in the process for the three of us (the strategic Director and the Creative Director that were together with me responsible for the experiments), we each decided to go our own way: the Strategic Director started his own travel agency ('The Prince of Hola Pola'), the Creative Director started his own design agency (Today Design) and me myself went back to academic work (which I never fully left) with the full intention to find out what really happened. In 2008 I decided to make my research my PhD-study.

There were several arguments to continue in this direction:

First, seeing the transformation of the 'problematic accounts' happening from nearby during the years following the intervention (which culminated in both cases in awards in 2011: Veritas being awarded as 'retail chain of the year in Belgium in 2011' and Antwerp becoming awarded by the Financial Times in 2011 as FDI-winning city in the category of small cities from a list of 51 cities) made me think about having been part of realising sustainable change by doing a rather small intervention: redesigning the logo in order to transform the enterprise logic;

Second, the fact that the article of Plowman entitled 'Radical change accidentally: The emergence and amplification of small change' was awarded with the Academy of Management Journal Best Article Awards in 2007 made us read the article and made us think about a possible explanation for our own (radical but also accidental even while designed for) experiences (Plowman, Baker, Beck, Kulkarni, Solansky, Travis, 2007a). Reading the article I had a feeling of recognition and even a reflection (which felt as a kind of conviction from my creative-industry background) that one can design for it. In the article of Plowman it was the strange act of youngsters of 'Bringing Breakfast to the Homeless People' that caused the transformation of the church on the longer term. From my perspective of the creative industries this sounded as the definition of a high concept as defined by Steven Spielberg as '25 words or less, that give you goose bumps';

Third, in the meantime we started a Master in Imagineering at NHTV University of Applied Sciences which got accredited by NVAO in 2007 and was reaccredited in 2013. In this program students work with an 'application company' and from the very first year some students were able to design effectively (even while the emerging processes themselves mostly take a few years before effects are recognised) for transformational change in organizations as is the objective of the program. This convinced us of the possible theoretical value of the method and the mechanism.

These three elements made me decide to develop my search into a PhD-re-search, realising that having got this opportunity to interfere as an organizational designer on a strategic level in a commercial and a governmental organization (and many more in the years after) was a rather privileged coincidence. But I also realised that management ideas that do not become legitimized by quality research, have a superficial value. I judged that these empirical settings offered the opportunity to build valuable design knowledge.

1.5.2 Research questions

This study's defining question is whether the design method of imagineering is an effective design method in realising organizational emergence.

The questions that drove this research project were:

What is the complexity perspective and in what way does it complement our thinking and acting about change, organization development and transformation?

What is organizational emergence and is it feasible to implement reflexive emergence as imaginative emergence?

Is it feasible to design for organizational emergence?

How can we design for organizational emergence? (The articulation of the imagineering design method.)

How can the effectiveness of the design method be assessed? What are the criteria for evaluation?

What are the implications for our thinking about
- *(social) change;*
- *design thinking;*
- *strategic thinking;*
- *management education.*

It is not my aim to reflect in depth on the broad topic of complexity and design but focussing on designing for organizational emergence can potentially generate insights for this broader field.

The research methodology (evaluating the effectiveness of the design methodology in natural experiments) is discussed in depth in chapter 5.

1.5.3 Research assumptions

Our assumption in this research is threefold:
- Human agents not only have a reflexive capability but also an imaginative capability as 'imagination is the pristine power of the human mind' (Osborn, 2006:2). Based on their experience, different people can see different possibilities stemming from the same cue/imaginative narrative/construction and consecutively can act differently upon such a cue influencing the pattern of organizational

emergence. Both, uniquely, human capabilities, reflection and imagination can make emergence something we can design for in human ecologies;
- Humans have at least two modes of knowing and languaging: the logico-rational mode and the narrative (or aesthetic) mode (Bruner, 1986, Strati, 1992, Gagliardi, 1996). Because of the evident link between complexity and the narrative mode (Tsoukas and Hatch, 2001), we assume that 'designing in the narrative mode' or the design of an 'artful (linguistic) creation' (Nissley, 2004) can transform the dialogue and consecutively can open the imagination in complex, human systems in order to generate new order;
- If the assumption is true that we humans are part of the bigger evolution of the living matter, than it is reasonable to expect that our unique human capability of imagination has a role to play in the 'cosmic blueprint' of Paul Davies (1989) and that we humans can generate new order by imagining simple rules that invite for changing behaviour in a direct or indirect way.

1.6 Outline

After this introductory chapter, Chapter 2 sets out the complexity 'worldview' in a broad way as is necessary for evaluating design work. For the reader familiar with the complexity worldview, this chapter might be superfluous. But for those not knowledgeable with complexity science it is important to realise how these insights coming from the study of non-linear dynamic systems influences all we do in management as to make it possible to evaluate organizational design interventions on their effectiveness. Chapter 2 discusses the challenges of the non-linear dynamic worldview (we will call it the dynamic worldview) with its underpinning from complexity science and stipulates what this paradigmatic shift means for the social sciences, for management and for our thinking about change and organization development. It sets the broad perspective for thinking and talking complexity.

Complexity research in management has numerous approaches and streams but the primary question is 'How does order emerge in the first place. Chapter 3 discusses the phenomenon of emergence and reviews recent organizational studies and the model of dissipative structures that, as it underlies most of the research on emergence, will also be used in the evaluation of our own, natural experiments. In this chapter we also present 'imaginative emergence' as a specific, possible case of reflexive emergence in human systems.

Chapter 4 discusses design, the genealogy of design methodology in organization studies and what design has to offer to organization development and emergence specifically. The chapter concludes with the presentation and the articulation of the design method of imagineering as it has been used in our work so far.

Chapter 5 presents design research from a complexity perspective and it presents the research methodology used in this study.

Chapter 6 presents the findings of the two natural experiments in which we evaluated the design method: one commercial case, being the Belgian retail-chain Veritas and one governmental case, being the city of Antwerp.

Data are constructed in coherent interviews and analysed with fractal- and attractor narrative analysis. Based on this analysis process tracing has been executed, as well process induction as process verification with the four dynamics recognisable in dissipative structures. On top other material is used in a cross case comparison reflection.

Finally, chapter 7 discusses the opportunities and limitations of the design method and it offers conclusions and perspectives on future directions of our work with its philosophical implications.

1.6.1 How to read the thesis

As complexity and design are trans-disciplinary in nature, this thesis is written in this spirit: it combines insights from different disciplines within the social sciences like insights from marketing, management, psychology and organization sciences, and design from an organizational perspective and it even touches art. Given the range of domains of desirable knowledge, this study is written with a broad scope and is definitely sometimes limited in its depth on a specific subject as it is almost impossible for a generalist to know the literature in all these fields. The trans-disciplinary approach requires that those who do know the culture and the literature in a specific discipline are generous and tolerant in reading 'familiar' parts.

Different chapters can be read in isolation if the reader is only interested in a specific topic. To facilitate this partial reading, each chapter contains an abstract and conclusions (what I learn from the chapter-content in regard of the development of a design method). For this introduction chapter I made an exception while an abstract and conclusions make no sense for an introduction.

1.6.2 How the thesis was written

This study is the outcome of a decade of search and research in theory and practice. It started with reflexive experimenting in 2003 and 2004 with the method developed for entrepreneurial work in the creative industries at the turn of the century. The search took a systematised turn to re-search in 2008, the moment the idea grew having been part of an intervention that realised sustainable change.

Although the outline of the study presents a literature review (chapter 3), a developed design approach (chapter 4), the methodology used in the study (Chapter 5), and reports on its application (Chapter 6), the reality of our work was somewhat different. In practice the process was very iterative and evolving also by hindsight and experimentation than the sequence of this final study would suggest. At the time of the interventions we had for example a rather superficial understanding of complexity science but it simply became our established template as we discovered the effectiveness and relevance of studying change and transformation from this perspective. That's why we start our study with a rather elaborate treatment of 'Complexity and social systems inquiry' in chapter 2 as to make it possible for readers not familiar with complexity to emerge themselves in the perspective as to be able to 'judge' the findings the method in the broad context of management reality of today.

We believe that we have arrived at a rich contribution to design thinking in social systems which addresses the challenges of organizational emergence under highly internal and external turbulence. Coming at the end of the whole process we judged it to be more fruitful to present our study in a regular thesis outline than to synthesize a self-consistent account of what happened during the whole process.

Without the first period of working under the umbrella of a strategic agency and being able to re-arrange logo's to reframe enterprise logic, this research most probably had never been possible while most often commercial players don't trust academic people to work with their logo, their identity, their logic of functioning. But this is most probably the faith of most academic policy or strategic design research and in that sense, it is nothing peculiar. It was a most inspiring process to go through. I hope you can taste a little bit of this rich discovery. Now I kindly invite you to think with me what really happened.

1.6.3 Map of the thesis

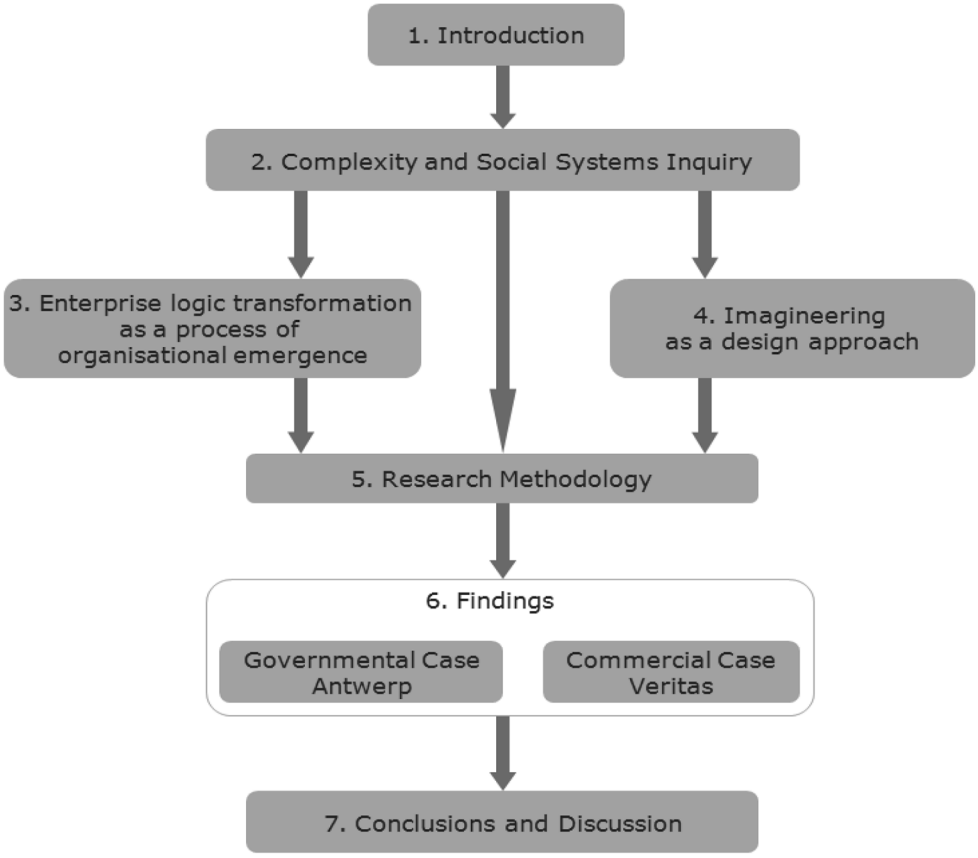


Figure 1.3 Map of thesis

2 Complexity and Social Systems Inquiry

Abstract

The way in which we envision and understand our world, determines the way we do research and the way we attempt to affect our world as designers. Seen the complexity, uncertainty and ambiguity in today's society, this chapter presents the complexity paradigm by comparing it with the classical paradigm in the framework of social systems inquiry: systems theory, systems philosophy and social systems methodology.

It explains how this new perspective of complexity brings about a shift in our thinking, researching and acting concerning organization development, change and transformation as compared to the classical paradigm and its implications for design. For readers knowledgeable with complexity science this chapter might be superfluous. For all others, this chapter is a fundamental read to understand the study.

The reform in thinking is a key anthropological and historical problem. This implies a mental revolution of considerable greater proportions than the Copernican revolution. Never before in the history of humanity have the responsibilities of thinking weighted so crushingly on us".
(Morin, 2008:vii)

We are observing the birth of a science that is no longer limited to idealized and simplified situations but reflects the complexity of the real world, a science that views us and our creativity as part of a fundamental trend present at all levels of nature.
(Prigogine, 1997:7)

The future is not given. Especially in this time of globalization and the network revolution, behaviour at the individual level will be the key factor in shaping the evolution of the entire human species. Just as one particle can alter macroscopic organization in nature, so the role of individuals is more important now than ever in society.
(Prigogine, 2000:36-37)

"Going beyond what we usually consider the domain of sources of design thinking, we should be informed by new insights that have emerged in the thinking of scientists of the new physics, such as Bohm, Prigogine and Davies. It would take a separate book to explore the relevance of emerging scientific ideas to design. And such a book should be written to further design thinking."
(Banathy, 1996:169)

2.1 Introduction

As this quote of Banathy already indicates, the way we envision and understand our world determines the way we do research and the way we attempt to affect our world. Designers, not in the least organizational designers, designers for social systems, can and should know and use multiple glasses, multiple systems approaches. To keep it simple for now: there is the conventional systems approach coming from classical science which is oriented toward equilibrium situations and which is very effective for designing for closed systems. Designers in this paradigm design solutions. However, a new paradigm is emerging from complexity science which is oriented towards dynamic systems and which promises to open a new world for designing for open systems such as for social systems. We argue in this study that designers working in the latter paradigm can design for evolution.

The intent of this chapter is to discuss how the systems approach coming from complexity science fundamentally influences social systems inquiry. What social scientists hope to discover in the complexity paradigm is how to understand micro-social interactions 'give birth to' social emergence. These insights are essential for design thinking for organization development, change and transformation. As design thinking is firmly embedded in systems thinking, a paradigm shift in systems thinking enriching the systems approach at the same time enriches the thinking modalities for (organizational) designers. However, most of the implications of the complexity systems approach for (organizational) design still have to be discovered.

To clarify the influence of the complexity paradigm, we will follow the line of disciplined systems inquiry as discussed by Banathy and Jenlink (2003): consecutively we will discuss systems theory (2.2), systems philosophy (2.3) and systems methodology (2.4). While systems methodology depends on the system under consideration, in our case: social/human systems, paragraph 2.4 will focus on the implications of the complexity paradigm for the social sciences and for the methodologies concerning management, change and development.

As the intention of this chapter is to get grip on the 'emerging' paradigm, we invite readers to use the glossary for some more clarifications on conventional systems thinking if needed. This chapter will reconceptualise the systems approach from the complexity paradigm as an alternative resource for design thinking in living systems. It is foundational work for social systems design (chapter 4) while not much work has been done in the direction of organizational design science. In compiling paragraph 2.4 we use work from organization sciences sometimes in a creative way, linking it to design thinking where thought possible. Doing this we try already in this foundational chapter to enrich the picture in the direction of organizational

design thinking from the complexity perspective. The line followed in this chapter is outlined in the table below.

Table 2.1 Social Systems inquiry in the Classical and the Complexity Paradigm

Worldview / **Systems Inquiry**	Based on the paradigm of **classical science**	Based on the paradigm of **complexity science**
Systems theory	Equilibrium is the norm to which a system returns if there are small deviations via the mechanism of negative feedback-loops.	In open, dynamic and non-linear systems the orientation is on the generation of (new) order via the mechanism of positive feedback-loops.
Systems philosophy - ontology - epistemology - axiology	- Based on closed entities -The knower should maintain an objective distance from the known. - There is an objective 'truth'	- Reality is dynamic, self-organising and emergent. - The relationship of the knower to the known is also dynamic, self-organising and emmergent. - Values are inherently implicated in the inquiry process.
Systems methodology - analysis - organisation - management - development - design	- Is reductionist and quantitative - Static entity that can be developed - Management is about planning and controling - Diagnostic OD -Solution-oriented The idealized design	- Is a matter of interpretation - On ongoing process of becoming - Bringing the organisation out of its equilibrium-zone - inspiring and orchestrating the dialogue -Dialogic OD -Evolution-oriented Imagining a wanted direction and designing a narrative frame that evokes emergence in the desired direction

2.2 Systems theory

2.2.1 Systems thinking and its evolution

During the early 1950's scientists such as Ashby, Bertalanffy and Boulding, founders of the 'systems movement', recognized a compelling need for a unified disciplined inquiry, a trans-disciplinary approach, in order to deal with growing complexity, complexities that are beyond the competence of any single discipline. They searched for ways to bridge the increasingly fragmented disciplines of study in order to improve the human condition (Banathy and Jenlink, 2003; Metcalf, 2008, 2003). The idea was to develop a 'general systems theory' (Bertalanffy, 1956) as 'the skeleton of science' (Boulding, 1956). From their work systems theory emerged. Systems thinking and systems theory was used in all kind of activities like systems analysis, systems design, systems development and systems management, in material as well as in social environments. Systems thinking is defined by Banathy as "a property of the thinker, who organizes internalized systems ideas, systems concepts, and principles into an internally consistent arrangement, using a systems way of viewing and understanding, in order to establish a frame of thinking […], a cognitive map" (Banathy, 1996:156).

For Kefalas (2011:345) systems thinking has three main characteristics:

> "(1) Systems thinking is *a view of the world*: it is the conceptual scheme by which one organizes one's thoughts and actions with respect to reality;
> (2) Systems thinking *is interdisciplinary*. It attempts to build a general viewpoint by borrowing from many seemingly diverse disciplines which is a departure from conventional scientific thinking;
> (3) Systems thinking conceives real-world phenomena as systems and *stresses interrelationships and interactions* among the entities generating these activities rather than on the entities themselves".
> Systems thinking is the conceptual context in which design thinking is embedded (Banathy, 1996).

The evolution of systems thinking of the last decades in the 20th century went from hard systems thinking to organismic systems thinking and from soft systems thinking to critical systems thinking (see glossary). Every evolutionary phase was mirrored in design thinking as systems thinking works as the conceptual frame for design thinking. General systems theory was generally interpreted to be equilibrium-oriented and fundamentally static (Montuori, 2011a) which was much criticised in the social sciences. It "was viewed as being fundamentally politically conservative and oriented toward maintaining the status quo, rather than open to creativity and change" (Montuori, 2011a:414).

As a consequence of fruitful exchanges between general systems theory and the field of information theory and cybernetics, concepts such as negative and positive feedback, entropy, and self-organization became part of the systems lexicon. These are important concepts in the evolution of systems thinking for the social sciences and Montuori (2011a:414) explains them as follows in a very practical way:

> *"Negative feedback is deviation-reducing feedback, which can be found in a thermostat. A decrease in temperature below a certain threshold kicks in the heating, so that a relatively stable temperature is maintained. Positive feedback occurs in so-called 'self-exciting' or 'runaway' systems when, for example, one person's rude behaviour leads another person to respond even more rudely and the whole thing escalates until the arrival of the police acts as a negative feedback. Positive feedback can be found both in vicious and virtuous cycles. People who do not exercise tend to feel more and more out of shape, and therefore feel less and less like exercising, which makes them even more out of shape, and therefore even less likely to move, and so on. Alcoholism and drug addiction also work through runaway positive feedback. But positive feedback can also kick-start a situation that has become stuck – the more somebody exercises, the better they feel, and so they keep exercising. With its focus on deviation amplification, positive feedback is also associated with creativity and innovation. If negative feedback maintains a system on course and in equilibrium, positive feedback's deviation amplification takes it toward disequilibrium and change".*

From the study of non-linear dynamic systems (such as weather patterns) appeared in the 20the century a 'new family of systems theories' (heavily nurtured by research at Santa Fe Institute of Complexity which also founded a new journal in 1995 'Complexity') that has as its explanatory touchstone the exchange of energy with the environment instead of equilibrium (Reed and Harvey, 1992). This evolutionary step caused a paradigm shift in scientific thinking from an orientation towards equilibrium and statics towards a kind of thinking that is oriented towards disequilibrium, self-organization, non-linear dynamics, emergence and unpredictability. It brings about a whole new conceptual frame for systemic approaches and thus for design thinking, a journey of discovery that is yet to start.

Contrary to the general systems theory which was always more successful at explaining natural systems than social systems, this new wave of systems thinking was no longer ignored by social scientists (Sawyer, 2005) as this new wave of systems theory (Sawyer calls it the third-wave of systems theory of Parsons' structural functionalism and the second wave of general systems theory) is particularly well suited for social explanation offering another worldview.

2.2.2 The paradigm of complexity

A paradigm or worldview refers to "a connected set of beliefs or basic assumptions, or a dispositional stance about the nature and organization of the world, together with beliefs about how best to investigate it" (Kuhn, 2007: 156 based on Kuhn, 1962). Paradigms can change and they effectively change on an individual level between generations. But they change more fundamentally on a societal level on a larger time scale (Tetenbaum, 1998). Because of the fact that our consensus of the global arrangement of the world evolves slowly in comparison to a human lifespan, an individual perceives it mostly as constant during his or her life. From history we know now that different templates existed in our human existence so far as for example the religious template in medieval times. Nowadays our minds are moulded on the Newtonian, linear, cause-effect paradigm but we are massively confronted with the limitations of this 'simplistic' (Morin, 2008) linear paradigm and we are in desperate need for a new paradigm, a paradigm that allows for more complex thinking and this seems to be offered by insights from the complexity sciences, the study of complex systems, the study of 'new' physics.

From previous generations we inherited the Newtonian template: a mechanistic and deterministic template, assuming predictability and certainty (Mathews, White and Long, 1999, Kuhn, 2007). We evidently interpret everything around us in a linear and mechanical way, assuming predictability and certainty, mostly without being aware of the inherited template (Kurakin, 2003). The Newtonian paradigm will continue to serve us well as the most convenient approximation for many phenomena, but we have to realise ourselves in the meantime that the Newtonian paradigm was never perceived as especially adequate in its application to the life phenomena, the so-called animated matter. The impressive success of the Newtonian paradigm as a framework for the development of the physical sciences and the rapid economical advances as a result of technological applications of physics, suppressed the early protest voices from scientists from the living matter and pushed the life sciences on the periphery of scientific development (Kurakin, 2003) with all consequences that we realise now for the animated matter and the social sciences.

The study of non-linear dynamical systems, also called complexity science, brings forth a new imaginary of processes, metaphors, descriptions and relations that allows seeing the world in a more dynamic way. And, as it is said that 'only complexity can cope with complexity' (a quote from Weick (1979:261) as a variation on Ashby's law of requisite variety (1956:206)), these insights come right in time to help understand and cope with, the growing complexity of our time (Kuhn, 2007).

In next two paragraphs we will explain the basic principles and metaphors of complexity theory as an alternative systems theory with high promises for the social sciences and social systems design.

2.2.3 Basic principles of the complexity paradigm

Order through fluctuation

According to some organizational complexity scholars (McKelvey, 1999, 1997; McKelvey, Mintzberg, Petzinger, Prusak, Senge, and Shultz, 1999), the original research that is now underlying what is being called "complexity", is the research of Ilya Prigogine, a Russian-Belgian physical chemist. His research on "dissipative structures" explains how regimes of order come into being and retain their form amidst a constant dissipation of energy and resources (Prigogine, 1955). His work was considered of such groundbreaking importance that it was awarded the Nobel Price in 1978. It demonstrated that we live in a world of non-linear dynamic systems, able to transform themselves into emerging new states of being and not in a world where systems run down, subject to ongoing deterioration. His work suggests that Newton's Second Law of Thermodynamics may still apply, but only in situations where a system is in equilibrium, that is to say, in closed systems. From this discovery onwards, dissipative structures or self-organizing systems are the basic structures of all living systems, including human beings (McMillan, 2008). (The dissipative structures model will be explained in next chapter.)

This basic principle became foundational for the (non-linear) dynamic worldview which is now associated with developing theories as network theory, complexity theory, chaos theory, non-linear thermodynamics and self-organization. The systems approach used to study far-from-equilibrium phenomena has its own autonomous foundations in non-equilibrium thermodynamics. The promise that the idea of far-from equilibrium holds for the social sciences was already underscored by Prigogine (1982) as according to him nonlinearities clearly abound in social phenomena and their 'characteristics are a property of the collectivity and cannot be inferred from a study of the individual elements in isolation' (Prigogine and Allen, 1982 in Reed and Harvey, 1992:360). Suggesting that society is a far-from-equilibrium system and approaching it from the perspective of dissipative systems theory is a fundamentally different stance than that from conventional systems theory.

While these theories were already appearing in previous centuries, the study of complex systems made its explosive advances with the appearance of the computer which enabled the massive calculations that enable the understanding of natural phenomena and mathematical modelling. Because of the computer it became possible to analyze the dynamic interactions of millions of things explicitly. Besides of introducing computer simulation as a powerful new scientific method, the resulting

insights point the way toward overcoming the duality of too simplistic former thinking and older models.

The paradigm of complexity is based in the rich conceptual basis of the non-linear science and is oriented towards dynamic understanding: it has its focus on dynamic interrelationships and interactions instead of equilibrium and statics on whatever scale: micro or macro, organic or inorganic, animate or inanimate, natural or simulated, individual or social, plant-like, animal or human. The dynamics at each of these scales exhibit similar characteristics, regularities and patterns and it are these dynamics that form the conceptual base of the complexity paradigm.

As the principle of 'order through fluctuation' seemed to govern the evolution of physical as well as biological systems, Jantsch (1975) and later others such as Goldstein (2011) tried to extend the application of this principle to human systems, in particular social and cultural systems.

Jantsch (1975:xvi) argues:

> *"If 'order through fluctuation', indeed, turns out to be a basic kind of mechanism for the unfolding of evolutionary processes in all domains, a unified view of evolution becomes a distinct possibility. It will make the old dream of general system theory (the approach introduced in the 40,s by biologist Ludwig von Bertalanffy to study life or living systems in the linear worldview) come true in a new light. The unifying principle will be found in the dynamicconditions of non-equilibrium systems and the insurance of continuous metabolizing, entropy-producing activity and energy exchange with the environment. It will no more be sought in the static or steady-state conditions of equilibrium. Open, or partially open systems in all domains […] will then be the carriers of an overall evolution which ensures that life continues, that a non-equilibrium world evolves to ever newer dynamic regimes of complexity. Life itself takes on a new and very broad connotation in this light, far beyond the narrow notion of organic life."*

Open system

Compared to a closed system like a rock or a table, an open system is a system that disposes itself of an external source of matter/energy. This is interesting while one can now consider a certain number of physical systems (the flame of a candle or the flow of a river around the piling of a bridge), and especially living systems, as systems whose existence and structure depend on an external source.

According to Morin (2008:10) this means two things:

– "this concept of open system builds a bridge between thermodynamics and the life sciences;
– a new idea emerges in opposition to the physical notions of equilibrium/ disequilibrium, and goes beyond one and the other, in a sense containing them both".

While a closed system is in equilibrium, the constancy of the internal environment of an open system is not at all linked to such equilibrium. On the contrary, in an open system there is disequilibrium in the energetic flux that feeds it and without this flux, there is an organizational deregulation that quickly leads to decline. In an open system there is a 'nourishing disequilibrium' that allows the system to maintain an apparent equilibrium. This apparent equilibrium degrades if there is a closure of the system. This 'steady state' is somewhat paradoxical: the structures remain the same even though the constituents are changing and in a way, the system has to close itself off from the outside world to maintain its structures and its internal environment. If it did not, it would disintegrate. "This closure is allowed by the very fact that the system is open. […] Here we find a primary, central, obviously key problem of living beings (and thus eventually for organizations), a problem that is ignored and obscured in the former paradigm for whom all living things are considered closed entities, not as systems that organize their closing (that is to say, their autonomy) in and by their opening" (Morin, 2008:11).

For Morin (2008:11) two capital consequences flow from the idea of an open system:
- "the laws of organization of the living are not laws of equilibrium, but rather disequilibrium, recovered or compensated, stabilized dynamics;
- the intelligibility of the system has to be found, not only in the system itself, but also in its relationship with the environment, and that this relationship is not simple dependence: it is constitutive of the system.

Reality is therefore as much in the connection (relationship) as in the distinction between the open system and its environment".

The connection with the environment is absolutely crucial epistemologically, methodologically, theoretically and empirically (Morin, 2008:11):
- "Logically: the system cannot be understood except by including the environment. The environment is at the same time intimate and foreign: it is part of the system while remaining exterior to it;
- Methodologically: it becomes difficult to study open systems as entities that can be radically isolated;
- Theoretically and empirically: the concept of an open system opens the door to a theory of evolution, that can only come from the interaction of system and ecosystem, and, in its most significant organization – all leaps, can be conceived of as the "going beyond", the surpassing, of the system into a meta-system".

Non-linear dynamic systems (NDS)

Complexity researchers have discovered four basic assumptions underlying non-linear dynamical systems that are useful for understanding order creation and self-organizing processes, also in human systems. Non-linear behaviour only makes sense when studied as a whole.

Table 2.2 New assumptions of Non-linear Dynamic Systems contrasted to the old assumptions – *West, 1985*

New assumption of NDS	Contrasting old assumption
Organizations are in a state of constant change	Organizations are in stable equilibrium
Emergent systems are not reducible to their parts	Organizations can be understood by analyzing their separate departments, etc.
Organizing is a mutually interdependent process	Organizational behavior is essentially a linear process involving independent elements (employees, departments, SBUs)
Actions and outcomes in NDS are non-proportional	Organizational behavior is incremental; systemic responses are linearly correlated to specific actions

In a bio-mathematical book entitled 'On the importance of being non-linear', West (1985 in Lichtenstein (2000:527) describes these four basic assumptions of NDS:

- *Change is a constant:* complexly ordered systems are never stable but they operate in an extremely dynamic state (West, 1985 in Lichtenstein, 2000).
- *Emergent systems are not reducible to their parts:* dynamic systems are not fully decomposable. Their emergent behaviour has an internal integrity that cannot be understood fully by analyzing its elemental components (West, 1985, Thelen and Smith, 1994 in Lichtenstein, 2000).
- *Causality is interdependent:* A linear causal logic of action-reaction does not exist in complex systems (West, 1985, Capra, 1996). System elements are not independent of each other, and interactions between them are not linear. With this assumption of mutual dependence, each element in a dynamic system is interdependent, and therefore depends on the others for its identity and function (Goerner, 1994 in Lichtenstein, 2000).
- *NDS behaviour is non-proportional:* The effect of a force may be non-proportional to the strength of that force's input (West, 1985; Bettis and Prahalad, 1995; Holland, 1995 in Lichtenstein, 2000).

For Lichtenstein (2000) these are the basic principles for a paradigm of self-organization which he applies to generate a complexity approach to organizational change and transformation. In 2.4 we will see how these four assumptions of NDS have implications for management and in chapter 4 we will suggest how these assumptions can have implications for (organizational) design.

2.2.4 Basic metaphors of the paradigm of complexity

One important way complexity science influences our thinking and behaviour is by introducing complexity and chaos (chaos theory being a forerunner of complexity science) metaphors in our language and our thinking. Key mathematical concepts of complexity and chaos seem to have similar patterns in social systems as in natural systems. Even when opinions differ about the appropriateness of this use for analogy or isomorphism, still the metaphors continue to appear in research and practitioner journals. In this paragraph we present some central metaphors that are often alluded to in management and change literature and we explain already how they are interpreted in the context of change but the major accent for now is on the (mathematical) metaphors coming from complexity. In 2.4 we will elaborate more on how these metaphors should be used and interpreted in the social sciences.

– ***Complex adaptive systems (CAS):*** Complex systems are called complex adaptive systems in case they can learn and adapt to changes in their circumstances and their internal and external environments (McMillan, 2008:60). If the system can not learn it is called a complex system, but not a complex adaptive system.

Table 2.3 Features of complex systems – Cilliers, 1998 in: Allen, Maguire and McKelvey, 2011:82

1. Complex systems consist of a large number of elements.
2. These elements interact dynamically.
3. Interactions are rich; any element in the system can influence or be influenced by any other.
4. Interactions are nonlinear.
5. Interactions are typically short range.
6. There are positive and negative feedback loops of interactions.
7. Complex systems are open systems.
8. Complex systems operate under conditions far from equilibrium.
9. Complex systems have histories.
10. Individual elements are typically ignorant of the behaviour of the whole system in which they are imbedded.

Sometimes the term complex evolving system is used to distinguish human from other complex adaptive systems. Mitleton-Keller (2003) speaks of co-evolving systems, insisting on the fact that human systems can co-evolve with their social ecosystem. Complex adaptive systems try to actively turn events into their own advantage and they also try to anticipate the future. Another characteristic of these systems is that they have emerging properties.

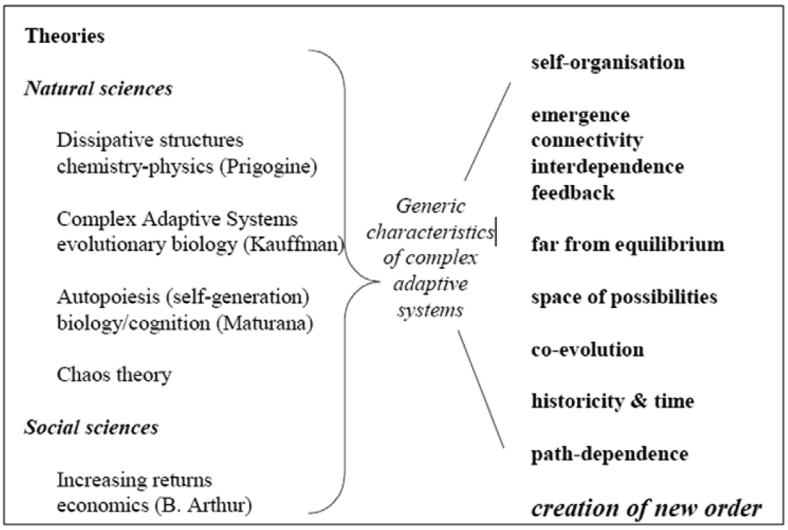


Figure 2.1 Generic characteristics of complex adaptive systems linked to theoretical insights – *Mitleton-Kelly, 2002*

This metaphor in which adaptation is crucial is used as a way to consider many facets of organizational change: Together with emergence (one of the next metaphors), these two metaphors are part of the same evolutionary process. Thinking about organizational change in terms of adaptation and emergence offers the possibility to discuss internal and external patterns (horizontal) and offers also the possibility that a single causal structure can be relevant across levels of change (vertical). Even when the need for adaptation in turbulent times is pretty obvious, the capacity to adapt to the right things at the right time while maintaining organizational stability is not yet clear according to Eoyang (2011).

Table 2.4 Characteristics of Self-Organizing, Complex Adaptive Systems – *A compilation based on Chiles, 2001, Miltleton, 2003 and Tsoukas and Hatch, 2001*

- A system with many interacting "parts" (i.e., a network) that form a coherent "whole" (i.e., a gestalt)
  - Network structures
  - Holistic structures
  - Hierarchical structures
- Agents act on "local knowledge" using "simple rules"
  - Knowledge is heterogeneous, dispersed, limited, and often tacit
  - No central controller
  - Agents with schemata
  - Individual schemata ("human action")
  - Shared schemata ("rule following"--laws, habit, culture, strategy)
- Interactions
  - Interactions give rise to "emergent properties"
  - Non-linearity
  - Circular causality and positive feedback loops
- Learning/adaptation by agents
  - Revision of strategies for action and recombination of the component parts based on feedback, on new knowledge
  - Learn to deal better with an environment of other adaptive agents
  - Knowledge is not given, but discovered
  - Competition and cooperation
- Far-from-equilibrium processes
  - Importation of energy into and dissipation of energy by a system is necessary to maintain a stable, yet disequilibrium, state
  - "Edge of chaos" is located between regimes of order and chaos; a region characterized by flexibility,
- Improvisation, and the emergence of novelty
  - Bifurcation points; series of "cascading bifurcations"
  - Process of achieving an equilibrium in a "multiple equilibriums" system; sensitive dependence on initial conditions
- Non-predictability
  - Specific, long-term outcomes cannot be predicted.
  - Only "pattern prediction" is possible.
  - "Explanation of the principle" is the best that can be achieved.

- Potential non-optimality
  - e.g., Light-water nuclear reactors locked-out the technically superior gas-cooled nuclear reactors
  - e.g., DOS/Windows operating system locked-out the technically superior Mac operating system
- Importance of history
  - Path-dependence
  - Eras and epochs
  - Conjunctural events
  - Specific historical events, actions and choices
- Increasing system complexity/heterogeneity
  - The "evolution of ever more complex arrangements"
  - The continual process of adaptation leads to "more variation in the system as the adaptive strategies of some agents open up niches for other agents to exploit."

– ***The Butterfly effect***: this metaphor relates to the sensitive dependence on initial conditions. It is a phenomenon whereby a small local change in a non-linear dynamic system (such as those due to rounding errors in numerical computation) can result in large differences to a later state rendering long-term predictions impossible in general. The popular name of the butterfly effect is derived from the theoretical example of a hurricane's formation being contingent on whether or not a distant butterfly flaps its wings.

For McMillan (2008:48) the butterfly effect tells us that:
– "all complex dynamical systems are exceptionally sensitive to their initial or starting conditions;
– small variations over time can lead to major changes in a non-linear system;
– complex dynamical systems are highly responsive and interconnected webs of feedback loops".

The butterfly effect shows that small things do matter in complex systems and it also shows that initial conditions in systems are of major importance in the possible evolution. It also highlights that simple cause-effect linear thinking (such as much of strategic planning) has limited meaning in complex dynamic systems, especially in living systems in a highly interconnected world.

– ***Fractal:*** For McMillan (2008:52) "Fractals are everywhere in the natural world. It is the design trick that nature uses to create our world and she does so using a few simple principles". Fractal is a concept introduced by Mandelbrot (1977),

referring to self-similar patterns. He introduced the concept of fractality as a mathematical framework for studying irregular, complex shapes that appear similar, even when magnified (Kuhn and Woog, 2006). The idea of fractality for Kuhn and Woog is that organic systems or generated systems may be examined for patterns of scale-free coherence, complexity and similarity.

Thinking in fractal terms can give managers a fresh and coherent picture on how an organization is structured and perceived and on how it operates and behaves at every level. McMillan (2008:121) illustrates this mentioning that an organization where core values are strongly held throughout, evidence will be founded at every level. Discovering this kind of fractal suggests that such an organization is well connected throughout and has a coherent structure that is 'fit for purpose'.

According to Eoyang (2011) fractals are used metaphorically in two ways when applied to organizational change: first as a constant principle, rule or idea that supports iterative applications and generates the emergence of a complex but system-wide image over time; and second, to explore relationships within and across hierarchies as well as the influence of individuals as they engage in organization change.

– ***Attractor***: "The term attractor is used to describe the different behaviours or patterns of behaviour of dynamical systems. […] The range of behaviours within which the system operates is known as its 'basin of attraction" (McMillan, 2008:50). An attractor is an organising force like for example the sun is an attractor in our solar system that influences the movement and spatial arrangements of planets. A friendly person can be an attractor at a party and the will to power can be a deeply felt attractor of a psychological type.

Attractors are used metaphorically applied in organizational change as they enable the analysis of narratives about change without simplification. For Kuhn and Woog (2006) the identification of attractors assists with understanding a complex system as it is possible to make inferences about the self-organising character of the system including interpretation of form and dynamics.

– ***Self-organized criticality***: self-organized criticality, in popular language (but not exactly the same) also called the 'tipping point (Gladwell, 2002), refers to the way in which internal dynamics can result in unpredictable system-wide transformations.

In organizational change this metaphor is used to characterize the relationship between continuous and discontinuous change and to explore the forces at work. It

is specifically relevant to retrospectively describe unpredictable, discontinuous, and cross-scale change.

– ***Emergence***: The most elaborate recent definition of emergence was provided by Goldstein (1999) in the inaugural issue of *Emergence:* For him emergence functions not so much as an explanation but rather as a descriptive term pointing to *the coming-into-being of novel, "higher" level structures, patterns, processes, properties, dynamics, and laws and how this more complex order arises out of the interactions among components (agents) that make up the system itself.*

This metaphor has been used widely in organizational change and will be central in next chapter.

– ***Complexity and evolution***: From a complexity perspective, species evolve not only in response to environmental conditions such as climate change but also as a result of spontaneous co-evolution. Both, species and environment can support the relationship.

The accepted view since Darwin that evolution is a matter of 'survival of the fittest', that evolution is slow and incremental, has proven to be wrong as in the 60's and 70's scientists found evidence of sometimes massive explosions in the number and variety of species as well as of massive extinctions. It showed that cooperation and self-organization were as well essential for evolution as natural selection and that the idea of 'survival of the fittest' might be replaced by the idea of 'survival of the most adaptive' (McMillan, 2008:65). In complex systems, connectedness has a key role in evolution and there is in fact more cooperation and self-organization than competition.

For McMillan (2008:66) this has major implications for the way we think about change and transformations in organizations: "Connectivity within a system enables responses and reactions to take place within a non-linear dynamical system as it responds via internal feedback loops. This excites and disturbs the system leading to the creation of new life forms and also the precipitation of declines and extinctions".

These are basic metaphors drawn from complexity that are used in organizational change but for scholars in the field of change management such as Eoyang (2011) there is not yet a set of metaphors agreed upon on which a coherent, shared understanding of complex organizational change can emerge.

2.2.5 Conclusion: Systems thinking versus complexity thinking

A complexity approach to systems inquiry has a lot in common with the classical systems approach as it is oriented in a 'holistic' way towards contemporary interests and concerns and it also allows for a rich interplay between and across disciplines.

From a systems theoretical perspective, however, based on the basic principles and basic metaphors coming from complexity science, it becomes clear that this new imaginary for seeing and understanding the world is fundamentally different from the classical approach and that it brings with it a new source for design thinking more suited for living systems than the classical reductionist approach. System thinkers in the dynamic worldview, complexity thinkers, see a reality of interactions, emergences and becoming (Delgado Diaz, 2007:48).

As Montuori (2011a:415) argues, eliminating in living systems "the interconnectedness, interdependence, and unpredictability also eliminates many of the most important dynamic features of the system. […] Central to our understanding of complexity is that it emerges out of the inclusion of relationships as a dynamic, constitutive process dimension of the phenomena we want to understand rather than viewing them as static elements in isolation from their environment". Understanding the world as a closed system is inappropriate in the study of and the design for living systems. Understanding living systems as open system is crucial in having an entry point for change and creativity.

Even if systems thinking is a holistic, interdisciplinary approach to seeing the world putting an accent on the interactions instead of on the separate parts, there is an important difference in systems thinking from the classical or from the complexity perspective. To make this difference clear, we summarize the essence of both in this conclusion, calling the former systems thinking and the latter complexity thinking.

Table 2.5 Systems thinking versus Complexity thinking – ***Based on Dimitrov (2003)***

Systems thinking	Complexity thinking
The world is made of systems and parts. Underlying assumption: the whole is more than the parts.	**The microcosmos is not simpler than the macro-cosmos.** Existence is a holistic manifestation of inseparably interwoven dynamics.
The world is predictable. One can work future oriented, using models, targets and goals in a linearly ordered environment. One can strategise and plan in closed systems. In open systems this appoach can lead to disasters (failures in highly sensitive areas as f.ex. climate change).	**The world is unpredictable.** One can seed emergence by feeding an attractor with energy. An attractor 'shrinks' and dissolves when it is no longer supported with energy. Fighting with attractors makes no sense. One can only center in the present because even tiny perturbations in the process of self-organization can have enormous impact on the further development of this process. – The butterfly effect
Improving systems A systems thinker working in an open system can see the emergence only after it has occured, when it is too late to undertake anything for preventing its occurrence.	**Improving living systems** can be done by seeding and nourishing new attractors in harmony with the self-organizing power of complexity and in removing the obstacles that prevent this power from realization.

Systems thinking

For the system thinkers, whether 'hard' or 'soft', the world is made of systems and systems are made of parts. The system has its own boundary that makes it distinguishable from the rest of the world. While working with the system, the system thinker likes to analyse the system to make the problem simpler and easier for studying and understanding. For artificial (human-made) systems, Dimitrov (2003) argues, such an assumption is acceptable. In nature and society however, this assumption fails.

As systems thinkers see the world as predictable, they can work future oriented with objectives and goals. System thinkers work with plans and blueprints, time-schedules and scenarios. In closed systems that are in equilibrium this linear way of thinking is acceptable but it is questionable in political and economic situations nowadays were this mode of thinking is still the dominant one. Being preoccupied with all kind of ecological plans and dreams to make the planet a 'better place to live' for the future generations Dimitrov (2003) argues that ecological systems thinkers are unable to stop the ever-accelerating tempo of environmental destruction that

happens today. Systems thinkers "can see the emergence only after it has occurred, that is, when it is too late to undertake anything for preventing its occurrence".

Complexity thinking

In nature and society, the micro-cosmos is not simpler than the macro-cosmos. The life of an individual is not simpler than the life of society as a whole or even as the galaxy. Only the scale is different as the fractal structure of nature indicates. Seeing existence as a holistic manifestation of inseparably interwoven dynamics, Dimitrov (2003) argues that complexity thinkers are dealing with concepts like attractors, fractals, self-organizing criticality etc. and these concepts are not in the vocabulary of the systems thinkers. Seeing living systems as open systems connected with the environment, is not pretending that systems can change but that systems are change. Our classical way of knowing did not make it possible to see this possibility. Individuals and organizations were fundamentally static and change and creativity was exceptional (Montuori, 2011a).

As complexity thinkers see the world as unpredictable, they centre their attention in the present, realising that even a tiny perturbation in the process of self-organization can have an enormous impact on the further development of the process. Dimitrov (2003) argues that while centred in the present, "complexity thinking has a capacity not only to see the emergent phenomena at the moments when they happen, but also to capture signals related to their potential occurrence *before* these moments. And this is of crucial importance, if the emergent phenomena could affect negatively the unfolding of life".

Complexity thinkers don't fight with attractors that emerge out of the turbulent flow of human life as this makes no sense. Nature in self-organizing processes is always stronger than the individual. But what complexity thinkers successful do, is seeding the emergence of new attractors. Dimitrov (2003) argues: "As all the attractors pulsating in the 'phase space' of life have a common supply of energy, when the energy flow directed for nourishing newly planted attractors grows in volume and intensity, the energy supply to the other attractors automatically decreases and, if not supported any further, the other attractors simply 'shrink' and dissolve. There is no need to use any specially designed strategy to intervene or fight with the attractors. In the creative acts of seeding and nourishing new attractors in harmony with the self-organizing power of complexity and in removing the obstacles that prevent this power from realization, as full as possible, of its creative potential, lie the secrets of 'improvement' of chaotic dynamics".

Taking back to the starting quote of Banathy (1996:169), designers have two resources for framing their design thinking: They can frame their thinking in the classical paradigm or in the complexity paradigm, both will have their situations of opti-

mal application. For the living matter, the complexity frame should definitely be explored. What is of help in acceptance of the dynamic paradigm is the fact that it gradually acquires economic power while economics, being itself a complex system, is increasingly perceived as a life science.

2.3 Systems philosophy

Previous paragraph made evident that the lens we use to investigate any phenomenon has a profound effect on what we can see and on how we do research and try to intervene. In the classical paradigm we think in entities and assume that there is an objective, transcendent and knowable reality. Methodologies to do research and to design are aligned with these assumptions, they are used to understand and intervene in existing observed realities in which we try to work with objective data.

In the complexity paradigm, however, the assumptions are different and these differences are articulated in systems philosophy. Systems philosophy seeks to uncover and articulate the most general assumptions lying at the roots of any and all of systems inquiry in order to give systems inquiry coherence and internal consistency (Banathy and Jenlink, 2003). Systems philosophy "guides the imagination of the systems scientist and provides a general world view, the likes of which –in the history of science- has proven to be the most significant for asking the right question and perceiving the relevant state of affairs" (Laszlo, 1972:10).

In general, philosophical aspects are worked out in three directions:
- the direction of the 'what'-questions, called the domain of ontology;
- the domain of the 'how'-questions, called epistemology; and
- the domain of the 'why'-questions concerning ethical/moral/aesthetics: values questions, called the domain of axiology.

Social inquirers drawing on qualitative styles of inquiry emphasize a socially constructed perspective on the nature of reality. They recognize the importance of making the researcher's paradigm explicit while it determines the choice of questions and methodology (based on ontological, epistemological and axiological assumptions).

In this paragraph we first discuss shortly the three domains and the implications of different paradigmatic perspectives, comparing the perspectives of the positivist (traditional/rationalist), the naturalist (social constructivist) and the complexity interpretation of each axiom based on the work of Lincoln and Guba (1985), Guba and Lincoln (1982) and Kuhn (2007). Illustrating the axioms by comparing different

perspectives is interesting for 'epistemological development' as it stimulates 'thinking about thinking' by comparison (Kuhn and Woog, 2011).

Following Kuhn (2007) and Lincoln and Guba (1985) we add two axioms to the one of ontology, epistemology and axiology being axiom 4 about the 'possibility of generalization' and axiom 5 about the 'possibility of causal linkages' to present the perspective of the full research paradigm as articulated by Lincoln and Guba (1985). Further it is important to note that by founding this paragraph on the work of Lincoln, Guba and Kuhn, this paragraph is already oriented towards the social sciences.

Axiom 1: Ontology: The nature of reality
In history there appear two great conventional philosophical alternatives of the intellectual picture of the world: one alternative views the world consisting essentially of things, the other views the world consisting of processes and sees things only as 'stills' out of a moving picture.

For Banathy and Jenlink (2003:39) systems philosophy developed as the main rival of the 'things view': "It recognizes the primacy of organizing relationship processes between entities (of systems), from which emerge the novel properties of systems".
Positivist Version: There is a single tangible reality that can be fragmented into independent variables.
Naturalist Version: There are multiple constructed realities that are best studied holistically.
Complexity Version: Reality is dynamic, self-organizing, and emergent. It is both singular and multiple at the same time and although "it" may be studied from various perspectives the act of study will affect the "reality" observed.

Axiom 2: Epistemology: The relationship of the knower to the known
This philosophical domain deals whit 'how do we know what we know'? It addresses:
– "the principles of how systems inquiry is conducted;
– the specific categorical apparatus of inquiry and that connected with it; and
– the theoretical language of systems science" (Banathy and Jenlink, 2003: 39):

Systems inquiry differs in this domain from traditional science, that the former gives prominence to synthesis, "not only as a culminating activity of the inquiry (following analysis) but also as a point of departure' (Banathy and Jenlink, 2003:39), while the latter is almost exclusively analytical.

The interpretations from Lincoln, Guba (1982/1985) and Kuhn (2007):
Positivist Version: The knower and the known are independent.
Naturalist Version: The knower and the known interact and are inseparable.
Complexity Version: Not only are the knower and the known dynamic, self-organizing and emerging, the relationship of the knower to the known is likewise dynamic, self-organising, and emerging.

Axiom 3: Axiology: The role of values
Whereas traditional scientists are distanced from axiological considerations, for Banathy and Jenlink (2003) systems scientists in the context of social systems and systems inquiry embrace this moral/ethical dimension as a crucial and defining characteristic of the inquiry process. They are constantly questioning the implications of their actions. It always should be value oriented and guided by the social imperative, which dictates the super-ordination of social efficiency on technological efficiency. The selection of methods and tools, as well as the ontological and epistemological processes that guide systems inquiry, work to determine what is valued, good, aesthetic and morally acceptable.

The interpretations from Lincoln, Guba (1982/1985) and Kuhn (2007):
Positivist Version: Values do not have a role in inquiry. Inquiry should be value free.
Naturalist Version: Inquiry is value bound. The inquirer expresses his or her values through the choice of: problem, paradigm to guide the inquiry process, theory to guide the data gathering, and treatment processes. The inquiry is also influenced by the values within the context.
Complexity Version: Values are inherently implicated in the inquiry process. Often it will be focus on values that will guide the process toward a satisfying outcome.

From a systems philosophical perspective, Boje (2008 and 2011) defines systems thinking and complexity thinking as follows:

> Systems thinking (as we know it):
> "Extends from closed to open, from mechanistic to organic, from first to second cybernetics, to the general systems theory approaches.
> The characteristics are theorist is a bystander, the approaches are monological, a presumption of wholeness greater than parts."
>
> Complexity thinking:
> is theorizing and practice beyond (conventional) systems thinking. The characteristics are observer is part of the dynamics, approach is dialogical, and parts can be greater than wholes (as in strange attractors, bifurcation, butterfly effect), the interactivity of parts can be self-organizing (rather than designed), with agential emergence combining with chance, contingency, and suddenlys.

As Guba and Lincoln (1982) in their work extend these three domains of systems philosophy with two other axioms: The possibility of generalization and the possibility of causal linkages, we follow Kuhn (2007) in adding them to better illuminate a complexity approach in social inquiry.

Axiom 4: The Possibility of Generalization
Positivist Version: Time and context free generalizations are possible, and thus the aim of inquiry is to develop knowledge in the form of generalizations that are time-and context-free truth statements.
Naturalist Version: Only time and context related working hypotheses are possible.
Complexity Version: Only time and context related working hypotheses are possible unless one moves to discussion of very general organizing principles.

Axiom 5: The Possibility of Causal Linkages
Positivist Version: There are real causes that are temporally precedent to or simultaneous with their effects.
Naturalist Version: Entities mutually shape one another so that it is impossible to distinguish causes from effects.
Complexity Version: Entities mutually shape one another so that it is impossible to distinguish causes from effects. Rather than causal linkages, other organizing patterns may be identified (such as relating to attractors or edge of chaos zones).

Conclusion on system's philosophy
A complexity approach to social inquiry is fundamentally different from the classical approach from a philosophical perspective. Besides of offering different images, metaphors and processes, from a philosophical perspective Kuhn argues (2007:174):

> "*In comparing positivist, naturalist, and complexity perspectives, congruence will be noticed between the naturalist paradigm versions of these axioms, and a complexity perspective. As sociolinguists in looking at the relationships between language, society, and social change remind us (Lee, 1992), the language used is of critical importance. Images and metaphors constructed through language are integrally bound up with worldview, and function as a means of classifying our experiences in the world in many different ways and at many different levels. It is not enough to assume that the language of a naturalist or interpretivist paradigm is actually describing and categorizing the world in the same way as complexity. A complexity approach to social inquiry goes beyond mere agreement to enabling different researching images and processes that work with these axioms*".

In the next paragraph on systems methodology and in next chapters on emergence and the research methodology of this study we will illustrate some of these different researching images and processes that work with the axioms as implemented from the complexity perspective.

2.4 Systems methodology

The implementation of the third domain of systems inquiry, systems methodology, depends on the functional context of application, in this case the domain of the social sciences and the humanities and the domain of organizational studies more specifically. Seeing organizations as complex evolving systems (CES) (CAS that can evolve), calls for appropriate methodology: appropriate approaches, methods and tools first of all, to study them and second, to help them evolve.

Social systems methodology consists of two broad parts (Banathy and Jenlink, 2003):
- Research methodology in the social sciences from the complexity perspective, generating knowledge about social systems; and
- Methodology for helping to evolve: methods and tools in the context of analysis, design, development and management of social systems, or else: what are the implications of the complexity paradigm for the way we analyse, design and manage complex evolving systems.

In this paragraph we first discuss the use of complexity science in the social sciences (2.4.1). Second we discuss complexity and research methodologies (2.4.2) and consecutively we discuss methodologies for helping to evolve (2.4.3 Complexity and Management, 2.4.4 Complexity and Change, 2.4.5 Complexity and organization development and 2.4.6 Complexity and design). It is obvious that this is a very broad topic and that our discussion will only be indicative for the different subjects. A broad perspective is nevertheless needed to be able to evaluate the design methodology of imagineering in the broader societal, managerial and organizational context.

2.4.1 Complexity and the social sciences

For Sawyer (2005) it is the third wave in systems thinking that awakened social scientists for systems thinking as first- and second-waves systems theories were rather ignored by social scientists while these theories were better suited for explaining natural systems than for understanding social systems. First- and second-wave systems thinking were not focused on emergence and it is the process of emergence which makes the complexity paradigm interesting for the living sciences. Sawyer argues (2005:22): 'First- wave systems theorists like Parsons assumed the analytic independence of distinct levels of social reality but they never developed arguments for the non-reducibility of higher levels of analysis'. And even as second-wave general systems theorists capture the notion of emergence it does not yet see the macro-social properties emerge from communicative interactions among thousands of independent agents.

According to Sawyer (2005:9) the third-wave view of social systems reveals the importance of complex communications among individuals but to date this essential role of communication in social emergence has been neglected. However, Sawyer (2005:8) argues: 'Artificial societies show that when the agent communication language changes, the processes of emergence change, and the global properties that emerge often change as well'. Drawing on recent developments in complexity research he states that the most important missing element in emergence processes is the sophistication of human symbolic communication. Societies are unique complex systems because of complex properties of human language.

It is obvious from the foregoing that the expectations of complexity in the social sciences are high. Already in 1975 Jantsch (1975:xvi) argued:

> *"No area of inquiry will benefit more from such a new theory of evolving systems than social science with its currently dominant mechanistic and behavioural concepts. It will make it possible to deal in meaningful terms with the life of human systems, including the birth and evolution of cultures with their powerful influence on all human affairs beyond any rational grasp. It will also make it possible to deal with social as well as individual creativity – with human design in the broadest sense of the word. […] These notions apply to all domains, but they are most richly orchestrated in human systems with their unique capability of introducing fluctuations and new energy in the form of ideas, expectations, models, myths and plans which surface within these systems."*

It is expected the life sciences will revitalize and move into the mainstream of research and development as a consequence of insights from complexity science (Kurakin, 2003:11). Many scholars however, such as Tsoukas (1998), Chia (1998), Nayak and Chia (2011), Kokkalis, Zundel and Peat (2008), argue against an uncritical application of complexity theory to the social sciences and organization studies. Of course there are very good reasons to integrate the complexity sciences and organization studies (Mathews et al., 1999:449-454):

- the increasing rates of change in society;
- the increasing emphasis on process research and organizational dynamics;
- the similarity to existing models of social behaviour;
- the disappointing results and the lack of relevance specifically in the field of organization studies where for example Ashmos and Huber (1987) argue that 'general systems theory (GST) offers a relatively static or, at most, equilibrium view of systems' with all consequences of trying to analyze dynamic processes with static instruments;
- the meta-theoretical and philosophical implications: The complexity sciences provide the first serious collective challenge to the four assumptions on which the Newtonian paradigm is based: equilibrium, negative feedback loops, decomposable levels and direct linear links between elements. The complexity paradigm

> does not suggest that the Newtonian paradigm is wrong but that it provides only a partial view of reality.

But with having good reasons and seeing organizations as living systems, we are not there yet. Consciously and subconsciously we continue observing that living system with linear, cause-effect glasses and as a result, try to cope with complex situations by destroying unities and totalities leading to mutilating actions (Morin, 2008). Ameliorating the situation is not a matter of more and deeper data but a matter of different glasses, dynamic glasses. What we need is 'a new way of seeing', a different style of thinking that is not bound to linearity, objectivity, and notions of control (Bateson, 1979; Capra, 1982; Bohm and Peat, 1987; Guba, 1990; Hawking, 1990 in Kuhn and Woog, 2011; Kuhn, 2009). Interpreting complexity only as offering new metaphors for seeing the world different 'carries with it the ghost of old ways of thinking'(Kokkalis et al. 2008:4). There is more in complexity than metaphors, not in the least for the social sciences and the humanities.

In essence this warning is about the following: Complexity is not only a matter of calculation (modelling) but above all, complexity is a matter of interpretation, especially in the social sciences. This stems with the arising of postmodern perspectives in the social sciences at this same moment in history (Dillon, 2000; Kuhn, 2002). The social sciences are inherently non-linear and therefore intrinsically unpredictable and not well suited for mathematical modelling (Kiel and Elliott, 1996:2). Therefore taking care for stretching physics (this time insights from 'new' physics) once more into the social sciences is important but one should prevent from stretching concepts too literally. The fact that complexity is a matter of interpretation is something that heretofore has been ignored by many complexity theorists (Tsoukas and Hatch, 2001).

Complexity is a matter of interpretation

Complexity, Casti (1986:149) defines, is 'in the eye of the beholder'. He illustrates this in a popular way mentioning that a stone is a simple thing for most people but not for a geologist, for a geologist, a stone is a very complex thing. The more inequivalent descriptions an observer can generate of a system, the more complex the system will be taken to be. As such, "Complexity is not only a feature of the systems we study it is also a matter of the way in which we organize our thinking about those systems" (Tsoukas and Hatch, 2001, 979). Tsoukas and Hatch (2001) call this 'second-order complexity' and they argue that it 'invites consideration of the modes of thinking we use to theorize about complexity'. These scholars develop this idea further using Jerome Bruner's distinction between logico-scientific mode and the narrative modes of thinking (for an explanation see table 1 in chapter 1). Chia in his more recent work together with Nayak (2011) and Morin (2008) develop the concept

of complex thinking and complex thought (which should not be mixed up with complexity thinking which we discussed earlier).

The narrative mode of thinking

As complexity is a matter of interpretation, Tsoukas and Hatch (2001) argue that complexity 'indicates and supports the use of the narrative mode'. The interpretive (and generative) power of the narrative mode of thought has been illustrated largely in organization science (e.g. Carlsen and Gudmundsdottir, 2001; Barry, 1997; Boje, 1995; Czarniawska, 1998). What is essential is that we can use language in an evocative mode and that this artful or poetic use can stimulate interpretation and can work generatively in complex issues (Weick, 2011, Nissley, 2004).

To explain the framework of Bruner (see table 1 in chapter 1): The cognitive psychologist Bruner (1986:11) argues that *human beings have two modes of cognitive functioning, two modes of thought, each providing distinctive ways of ordering experiences, of constructing reality. The two are irreducible to one another. Efforts to reduce one at the expense of the other inevitably fail to capture the rich diversity of thought'. Each of both ways of knowing has its own operating principles and its own way of functioning. There is the paradigmatic or logico-scientific mode we use to build an argument and there is the narrative mode, the mode we use to tell a story. 'The imaginative application of the logico-scientific or paradigmatic mode of thinking, leads to good theory, tight analysis, logical proof, sound argument, and empirical discovery guided by reasoned hypothesis. But paradigmatic 'imagination' is not the same as the imagination of the novelist or the poet. […] The imaginative application of the narrative mode leads instead to good stories, gripping drama, believable (though not necessarily "true") historical accounts' (Bruner, 1986:13).*

As already mentioned: Tsoukas and Hatch (2001) but also other scholars like Doll (2003) argue that the logic of complexity 'indicates and supports the narrative mode of thinking'.

Also Chia (1998), Tsoukas (1998) and Barrow (1991) point to the distinction between 'propositional knowledge', knowledge involving the formulation of conditional 'if-then' statements relating to an observed set of empirical conditions, and narrative knowledge, knowledge organized and expressed through stories, anecdotes and examples. These scholars critique dominant forms of thinking about organizational complexity that are rooted in the logico-scientific mode. Complex concepts and ideas are often articulated into explicitly measurable forms in order to render them amenable to cognitive manipulation but this is often not the way to use those concepts in human complex systems. Complexity concepts have more an interpretative value than a predictive value in human systems. In this context Boulton (2010) warns for 'worrying practices': concepts like the 'edge of chaos' and 'the butterfly effect' have sometimes entranced social scientists with sometimes all too simplistic

interpretations and sometimes heroism around actions or persons that are credited with this vital initiation. "Deeper considerations would suggest that what unfolds is likely to be due to a complex combination of history, chance, choice, interdependency and context".

Complex thinking and complex thought

In his more recent work, Chia argues (2011:182) that we have "to complexify our thinking in order to learn and better appreciate the nature of complexity. Resonating with the concerns of other scholars like Shotter and Tsoukas (2011) and richardson (2011), he argues that in our effort to complexify thought, we have to seek 'to wean our thought processes from the dominance of natural scientific thought on the nature of complexity". And further: "We have to learn from the arts the art of complex thinking for the arts have long explored and appreciated the subtleties, paradoxes and nuances associated with the human condition".

According to Morin (2008:3) we are still in the pre-history of human mind. Only complex thought will allow us to civilize our knowledge. For now we are confronted with *'blind intelligence'*: Our actual 'knowing' is not capable of recognizing and apprehending the complexity of reality while what we see as meaningful data depends on our paradigm at stake. We are still dominated by the principles of disjunction, reduction and abstraction, by the 'paradigm of simplification'. Our 'blind intelligence' destroys unities and totalities. These enormous deficiencies in our thinking necessarily lead to mutilating actions. Hyper-simplification makes us blind to the complexity of reality. Increasing the awareness of the contemporary pathology of thought is a first step in civilizing our knowledge and actions.

A complex world, Nayak and Chia argue (2011:182), calls for complex thinking:

- thinking that issues from the intimacy and immediacy of pure lived experience;
- thinking that acknowledges and embraces the inherent messiness, contradictions and puzzling character of reality;
- thinking that resists or overflows our familiar categories of thought; and
- thinking that is sensitive to the suppressed/marginalized 'other' that is denied legitimacy in our dominant scheme of things.

Instead of confronting our objects of inquiry directly, Chia argues (2011:183) that "we need to embrace more subtle strategies of engagement that acknowledge the primacy of the heterogeneous and multidimensional becoming of things, events and situations (Bergson, 1911, Whitehead, 1929, Prigogine, 1981 in: Chia 2011:184). "Issues of subjectivity, meaning, the limitations of language, and the essentially interpenetrative and transformative character of human experiences mean that the strict conceptual categories deployed so effectively in the explication of natural phenomena cannot be so easily transposed to the social realm" (Chia, 1998:342). To

say it with the words of economist John Kay (2010 in Chia, 2011:193): 'Happiness is not achieved through the pursuit of happiness and the greatest paintings are not the most accurate representations of their subjects'. In complexifying our thinking, using the narrative mode can definitely help but it is not a guarantee for complex thinking as meant by Chia (2011, 1998) and Morin (2008).

Consequences for social systems methodologies

What is needed in the social sciences, according to Lorino, Tricard and Clot (2011), are methodologies 'that overcome established dualism, such as representations vs. intuition, theorizing vs. experimenting and narrative thought vs. logical reason'. The absence of the narrative mode or another interpretive use of language like poetic language, in the complexity debate seems to be a mist opportunity for them. More important than the exact novelty claims of complexity science, is the fact that it offers a new imaginary to understand the world fostering an awareness of dynamic processes, relationships, unpredictability, novelty and emergence (Tsoukas and Hatch, 2001). Complex thinking should aim for 'dynamic understanding' (Kellert, 1993 in Tsoukas and Hatch, 2001). And it is precisely in this sense that both, the narrative mode of thinking and poetic language, have much to offer. Narratives or poetic language allow for interpretation. They allow for connecting the past, the present and the future and in that sense this use of language is far more complex than propositional statements or the rational mode of language can be.

What seems to be of major importance for the social sciences is that complexity science offers *a new ontological 'image'* that

- has the potential to shift the dominant paradigm from that of the still-dominant mechanical world view towards a view of the world as interconnected, a view that sees "things" themselves as thoroughly relationally organized (Kuhn, 2007), a radical relational view (Dillon, 2000);
- allows for "the development of an instrumentalized form of thinking, primarily concerned with the construction of tools for aiding our adaptive actions" (Chia, 1998:346), a revision of our way of thinking about social processes and how the study of those processes should be approached (Mathews, White and Long, 1999:441);
- *should be interpreted in the right way*: even while there is a huge amount of interest from mathematicians and physicists in modelling social systems in scenario thinking for policy interventions, human systems are made up of people and people make decisions for complex reasons: moreover they learn, they interact, they imagine and they live in complex environments which themselves are constantly changing (Boulton, 2010). For that reason it is important that policy makers understand the new ontology: that they see the world as interconnected, diverse and not perfectly knowable and that they realise that the earlier certainty and predictability is misleading and will never come back. Policy makers should

understand that the new map is more subtle but that now more than ever, 'the map is not the territory' (Boulton, 2010:3) and that the narrative mode has other capabilities than the rational mode in complex issues.

2.4.2 Complexity and research methodology

Complexity theory in essence is a formal attempt to explain 'the big consequences of little things'. Complexity is a perspective that has the capacity to revolutionize research methodology. It has the potential to bridge the gap between the natural sciences and the humanities, it is able to 'marry' positivists and post-positivists, it allows for methodological pluralism (mixed methods (combining quantitative and qualitative methods) and mixed model studies (combine these two approaches across all phases of the research)) and it has been embraced as well by mathematical modellers as by philosophical theorists. It can revolutionize research methodology bringing in the new imaginary but it can also strengthen arguments for existing research methods as for example in the case of action research.

Seeing organizations as complex evolving systems (CES) (CAS that can evolve) opens new perspectives for research and for methodology, for new and for existing. We illustrate both of these possibilities starting with action research.

Action research has a long tradition in the social sciences and while most of this research has the intention to augment effectiveness of the organization, it is a highly relevant methodology. Complexity scholars such as MacLean and MacIntosh (2011) and Phelps and Graham (2010) have argued that there are obvious parallels between complexity and action research and that 'action research can be a valuable and congruent meta-methodology for those researching from complexity-based perspectives' (Phelps and Graham, 2010:1).

However, Phelps and Graham (2010) also recognize that action research has nothing implicit in the model that prevents it from being used with 'linear, reductionist, analytic' intentions. Quite some action research is oriented towards best practices and is oriented towards improving a system, driven by hypothesis testing, reductionism and technical control. These approaches work on the assumptions that specific actions can be taken and formally evaluated within the context of a series of linear stages or cycles.

Complexity scholars are however firm about the fact that there is a 'deep complementarity' between complexity and action research (Davis and Sumara, 2005; Phelps and Hase, 2002; Sumara and Davis, 2009 in Phelps and Graham, 2010). They insist on the fact that action research can readily accommodate the tenets of complexity theory while action research

- accepts the inherent unpredictability of *open, non-linear systems;*
- is consistent with notions of *adaptation to environment;*
- centres on a*gent interaction;*
- embraces *reflective processes;*
- is interested in *'exceptions' and*
- *fits many more complexity assertions.*

Fractal and attractor narrative analysis is an example of how the use of complexity metaphors can revolutionize research methodology (Kuhn and Woog, 2006). It is an illustration of how complexity science principles can be useful in analytical techniques and how they can even deal effectively with perennially contentious issues in qualitative social inquiry, such as: 'having the research generalizable or transferable as opposed to site specific; coping with changes in all those involved, as a result of taking part in the research, and providing a means of engaging holistically with participants' (Kuhn and Woog, 2006). Bringing together complexity science and narrative-based inquiry, scholars argue, brings about an overall balance, or a form of synergistic harmony.

Dialogue has long been recognised as critical to the sense making process and the narratives thus generated. Paying attention to narrative is for Kuhn and Woog (2006) an important means of approaching social complexity. For those scholars, "hermeneutics, the art of studying texts, though having its origins in interpretation of religious texts, can usefully be brought to the study and the interpretation of the meaning of narratives more generally" (Kuhn and Woog, 2006:2).

Narratives are the discursive and conversational codes in which meaning is created and expressed. These codes are linked with our organising schemes. And the types of narrative that we exist within shape our experience. Narratives circumscribe our living. Hermeneutics refers to the process of interpretation of texts. Understanding narratives can only be accomplished by imaginative dialogue and as our interpretation is always biased, the 'resulting dialogue is an ongoing dance amongst interpreters' (Kuhn and Woog, 2006:5).

Complex entities are adaptive, self-organizing, dynamic, emergent and sensitive to initial conditions (Waldrop 1992 and Wolfram, 2002 in Kuhn and Woog, 2006). A complexity cosmography brings alternative images to those derived from linear, objective, positivist accounts of the natural and social world. The scholars argue that "narratives generated through coherent conversations can be analysed and/or synthesized through the complexity based techniques of fractal narrative analysis and attractor narrative analysis". Fractal and attractor as complexity metaphor function as instruments in the search of qualitative researchers to find an appropriate

or acceptable balance between neutrality, empathy, usefulness and morality in their inquiry.

Fractals as a (mathematical) framework for studying irregular, complex shapes, is an image for the organizational researcher that is almost unbound in its potential to stimulate conceptualisation, imagination and interpretation in the observer, without losing the connectivity – the so called character, or identity of the fractal' (Kuhn and Woog, 2006:12). Attractor (organizing force) analysis "enables researchers to make sense of the narrative without simplification' (Kuhn and Woog, 2006).

Seeing organizations as complex evolving systems (CES) (CAS that can evolve), not only calls for appropriate methodology to study them, but also for appropriate approaches, methods and tools and to help them evolve. This is the subject of the rest of this paragraph.

2.4.3 Complexity and management

Complexity science is part of an emerging new imagery in the scientific and lay cultures which helps us in re-conceiving the social world as a more contextualised reality, noticing instability, disorder, novelty, emergence and self-organization (Stacey, 2009). For management and change, it is argued that this development is of great importance. Mainstream management practice in Western Europe and Nord America is still heavily influenced by ideas and approaches derived from an out-of-date linear world view: the classical, traditional, scientific worldview often referred to as the Newtonian-Cartesian paradigm (McMillan, 2008). Nevertheless, along Maguire, Allen and McKelvey, (2011), the dynamic worldview of complexity is one of the fastest growing topics of research in the natural and social sciences. It is heralded as a new paradigm in management –a powerful set of methods for explaining non-linear, emergent behaviour in organizations (McKelvey, 1997, Anderson, et al. 1999) and it is embraced recently as well by the academic community as by practitioners in the field.

Managerial implications of non-linear dynamic systems assumptions
Lichtenstein (2000) uses the four basic assumptions underlying non-linear dynamic systems (NDS) of West (1985 in Lichtenstein, 2000) for explaining how and why order emerges in organizations. These assumptions are fundamentally different from the assumptions of traditional, mechanistic models (Anderson et al., 1999 in Lichtenstein, 2000) and they have demonstrated to be more useful in understanding organizational transformation.

Table 2.6 Four assumptions of NDS and their managerial implications – *Lichtenstein, 2000 based on West, 1985*

New assumption of NDS	Contrasting old assumption	Managerial implications of the new NDS assumptions
Organizations are in a state of constant change	Organizations are in stable equilibrium	Key managerial issue shifts from maintaining control to supporting the emergence of new order
Emergent systems are not reducible to their parts	Organizations can be understood by analyzing their separate departments, etc.	Emergent organizational systems generate resources that cannot be accessed solely through the system's agents alone
Organizing is a mutually interdependent process	Organizational behavior is essentially a linear process involving independent elements (employees, departments, SBUs)	Initiating major change requires increased organizing that moves the system to a "far-from-equilibrium" state
Actions and outcomes in NDS are non-proportional	Organizational behavior is incremental; systemic responses are linearly correlated to specific actions	When the organization is in a threshold state, transformative change is facilitated by making small but well-designed interventions

As a whole these assumptions from non-linear dynamical systems provide a new ground for understanding organization development. The first assumption reframes the key question of organization science from 'why systems change' towards 'how order and stability can emerge'. The second assumption offers a way to answer that question: a process by which "patterns or global-level structures arise from interactive local-level processes" (Mead, 1932 in Lichtenstein, 2000:532), a process of emergence. Assumption three and four follow through the potential of assumption two, the potential of emergence, by beginning to explain how change or evolution happens.

To see natural and social systems as complex adaptive systems, to evaluate their status as evolving products of evolution, constitutes a major revolution in thinking. It questions the status of our knowledge so far that was thought to be 'objective truth about eternal natural laws governing unchanging systems' (Maguire et al. 2011:2).

The complexity perspective provides us with a scientifically grounded basis for accepting two paradoxical forms of wisdom (Maguire et al. 2011:3):

– individuals can change their worlds through their interventions, but their agency must be reflexive and respectful of the complexity of the system in which they are embedded;
– both, the dream of omnipotence and the nightmare of impotence in a fully knowable but deterministic world dissolve with complexity science. And this represents in many ways an important cultural awakening.

The complexity perspective changes our thinking fundamentally. It not only embraces

– dynamics instead of the 'statics' of equilibrium;
– system plasticity (i.e. the appearance of quantitatively new features and disappearance of old ones),
– short: it embraces evolution: the emergence and qualitative development of structure and organization (Maguire et al., 2011:13).

According to Maguire et al. (2011:3) complexity is the science of organization –and in particular its origin and evolution- and is therefore the natural framework for considering organization and connected entities. With its ontological, epistemological and axiological implications it also offers new methods for studying and generating knowledge. "Complexity science provides scholars with a firm and scientifically anchored foundation to explore and understand human organizations" Maguire et al., 2011:3).

While complexity science and the use of complex adaptive systems to model organizational phenomena is in some way revolutionary, it is important to underline that systems approaches to understanding organizations have already a long history in management and organization studies. New however is the principle of 'order by fluctuation' and other concepts that invite for a relational, dynamic, coming into being approach of thinking in management and this allows for a fundamentally different approach of our research problem: the transformation of the organizational enterprise logic from exchange towards value (co-)creation.

'Departmental' implications of complexity

In light of our research problem, the transformation of the enterprise logic, it is also interesting to have a quick look at the 'departmental' implications of complexity on marketing, innovation, entrepreneurship, leadership and strategy.

Table 2.7 'Departmental' implications of complexity

Paradigm	Newtonian, linear worldview	Non-linear dynamic worldview
Dominant mode of value creation	*Sequential*	*Synchronous, interactive*
Marketing	*Exchange logic*	*Value co-creating logic*
Management	*Top-down, controle, efficiency*	*Emergence, self-organization*
Organization development	*Diagnostic OD*	*Dialogic OD*
Strategy	*Planning*	*Evoking, seeding*
Design	*Solution-oriented*	*Evolution-oriented*
Imagineering	*Appealing to the imagination to generate new order in the creative industries (as an end in itself)*	*Appealing to the imagination to generate new order in the creative economy*

Complexity and marketing

In the marketing world there was the redefinition of marketing by the American Marketing Association in 2004 as mentioned in the introduction chapter and at the same time there started a revolutionary academic marketing debate with the publication of the article of Vargo and Lusch (2004) in the Journal of Marketing: 'Evolving to a new dominant logic of marketing' in which the scholars argue that marketing has inherited a model of exchange from economics which had a dominant logic focused on tangible resources and embedded value oriented towards transactions to realise the exchange of goods. They argue that in society new perspectives have emerged that ask for a revision of this logic towards an orientation on intangible resources and the co-creation of value and relationships. Service (and not services) instead of goods should be the starting point of this new logic of marketing and they propose a shift from 'goods-dominant' towards 'service-dominant' logic.

Recently these scholars, together with Gummeson (2010) argue that the transition from a good/services divide to a good/service union, requires the super-ordination of mainstream service management by something as fundamental as a new language and lexicon and the generation of new theory for which they also advise the application of complexity theory, network and systems theory. For practice they advise that "Business, marketing, government, and politicians should focus on

service and value and abandon the goods/services and producer/customer divides. Textbooks and educators should transition from outdated concepts and models" (Gummesson, Lusch and Vargo, 2010:8).

Complexity and innovation

For Adriani (2011) complexity theory provides appropriate conceptual tools to understand the world of innovation. This is a world characterized by non-linear dynamics, emergent properties, discontinuities and self-organizing patterns. Complexity runs deep through the history of innovation. In spite of this fact that innovation studies is an ideal field for the application of complex systems-based models, the number of scholarly works that directly apply complexity to innovation is relatively small. Even as the recent shift in focus from the manufacturer-centric to network-centric approaches has intensified the fact that this world behaves as a giant interconnected organism that shares with the biological world fundamental evolutionary rules that govern origin, expansion, metabolism and decay of ecosystems, the relationship between complexity and innovation is not much worked on in the academic field according to Adriani (2011) who wrote the chapter on Complexity and Innovation' in the Sagebook on 'Complexity and Management'. We suggest that this might be due to the fact that complex thinking organizations have a different perception of innovation as it may be perceived as regular evolution.

Complexity and entrepreneurship

The opposite is true for the field of entrepreneurship as well in practice (see for example Fuller, Warren and Argyle, 2008 and Fuller and Moran, 2001) as in theory. This field has one of the most long-standing connections to complexity science (as it started some 20 years ago, a full decade before the Organization Science special issue on complexity in management more generally) as compared to other management disciplines. Lichtenstein (2011:471) explains this as follows:

– "studies of entrepreneurship and complexity science are both focused on innovation, novelty and emergence: entrepreneurship scholars study the emergence of new organizations, while complexity science scholars study the dynamics of emergence;
– Additionally both fields explore interactions and emergent phenomena at multiple levels of analysis, and both highlight the importance of nonlinear and unpredictable processes that generate emergent order in dynamic processes".

Lichtenstein (2011) argues that complexity science is much more than a set of computational approaches. Computational approaches may be effective at highlighting dynamics of interaction and emergent structures but they by no means can address the most paradigmatic type of complexity while they are devoid of imaginative, forward-thinking entrepreneurial agency.

With Lichtenstein (2011) and McKelvey (2004) we dare to conclude that the study of entrepreneurship is in essence the exploration of emergence, including its processes, dynamics and outcomes.

Complexity and leadership

In the field of leadership, insights from complexity science have their specific implications as emergence and self-organization are essential concepts in complexity (Lichtenstein, Uhl-Bien, Marion, Seers, Orton and Schreiber,2006; Lichtenstein and Plowman, 2009, Marion and Uhl-Bien, 2011, 2001; Marion, 2012; Plowman, Solansky, Beck, Baker, Kulkarni and Travis, 2007b). What then is the role of leadership in emergent self-organization?

Based on research, Plowman, Solansky, Beck, Baker, Kulkarni, Villareal and Travis (2007a,b) show that as enablers,

- leaders disrupt existing patterns of behaviour: they destabilize rather than stabilize their organization;
- encourage novelty: they encourage innovation rather than that they innovate themselves; and
- make sense of emerging events for others: leaders interpret events rather than that they direct them and
- leaders manage words rather than that they manage people.

Leadership from this perspective is not as much about individuals then it is about interactive dynamics, mechanisms and interdependency. Scholars working on problems that cannot be effectively solved with traditional top-down leadership approaches, often called adaptive challenges (Uhl-Bien, Marion and McKelvey, 2007), increasingly turn to complexity theory to better understand leadership and adaptive challenges in organizations. They explore for example strategies leaders can use for advancing and enabling complex responses on complex problems and they try to understand the role of leadership in complex organizational systems.

Uhl-Bien et al. (2007:299) have conceptualized three forms of leadership from this perspective as a framework for Complexity Leadership Theory:

- *Adaptive leadership:* leadership as a collective, interactive, generative dynamic that underlies emergent change activities. It acts outside of position and authority and it is embedded within an interactive context. Influences pass up and down a network in the system and the cumulative potential for change is significant.
- *Enabling leadership:* on the contrary is associated with managerial positions. Enabling managers to foster, guide and frame rather than to manage the conditions in which complex dynamics can 'emerge' as complex dynamics cannot be created from a blueprint.

– *Administrative leadership*: is the conventional leadership grounded in traditional, bureaucratic notions of hierarchy, alignment and control.

Important trends in the research in this field according to Marion and Uhl-Bien (2011) are the focus on social mechanism, interactive dynamics as core dynamics that complexity leadership engenders or by which it acts and, secondly, the emergence of complexity as a strategic leadership approach.

Complexity as a strategic leadership approach

In this context Marion and Uhl-Bien (2011) argue that informal dynamics are a major force in an organization's strategic response and they point to the argument formulated by Stacey (1995, 2007) that conventional planning approaches can reduce anxiety but that they are largely futile. Stacey suggests that instead of aiming for equilibrium with the environment, strategic leaders should seek far-from-equilibrium states in order to foster creativity and adaptability.

Boal and Schultz (2007:411) explain this strategic role of leaders in complex adaptive systems (CAS) as follows:

> *"Strategic leaders play a crucial role in moving organizations to the 'edge of chaos' and aid in organizational learning and adaptation by influencing the tags that produce the structure of interactions among organizational agents. Through dialogue and storytelling, strategic leaders shape the evolution of agent interactions and construct shared meanings that provide the rationale by which the past, the present, and the future of the organization coalesce.*

Discussing the nature of knowledge and its spread through social systems, Boal and Schultz (2007) refer to Richard Dawkins' book The Selfish Gene, in which the author develops an evolutionary logic rooted in biology to explain the selection and propagation of information. Like genes are the replicators in nature as discrete bits of information in which change can occur over time, he suggests that 'memes' are cultural replicators of cognitive consensuality, units of cultural transmission, that combine to define an individual's store of knowledge. Boal and Schultz (2007) suggest that the tags that underlie an organization's identity and value system and that help define the strategic vision, are also examples of memes. They argue that the tagging process is subject to evolutionary pressures.

Analogous to genes, memes can be seen as the basis for shared knowledge structures. The picture of memes created by Dawkins then, can be understood in terms of current cognitive views of organizations but with the added imagery of evolutionary dynamics at the level of the organization, Boal and Schultz (2007:425) suggest that they can be seen as potential drivers of change in collective beliefs. They carry

the gene analogy even further stating that as genes combine their efforts through interaction and mutual reinforcement, 'memes might also come together in higher level knowledge structures, or as 'bundle of ideas'.

For Marion and Uhl-Bien (2011) most important is the fact that leadership that copes with the adaptive challenges, happens in the informal dynamics as much as in the boardroom. Leadership in CAS is about shaping evolutionary processes and leaders play a key role in this.

2.4.4 Complexity and change

Complexity science offers an imaginary that helps us in changing our thinking about change and the dynamics of change (Stacey, 1995). In a dynamic worldview change is 'the normal' as opposed to its position in a linear worldview. In a dynamic worldview change is life, it is the normal flow of organizational life and managerial practice. In this paragraph we will focus on the micro-processes of change. In next chapter then, the dynamics of change will be central in our focus on 'emergence'. Here we focus on 'process', on how change happens in detail on the micro-level seen from the complexity perspective as this is essential for the design requirements in the design method of imagineering (presented in chapter 4). Transformative change as we argued in the previous paragraph, is facilitated by making small but well designed interventions in the micro-processes, transformative change happens by 'managing words' rather than 'managing people', it happens by transforming the dialogue of the people involved in the micro-processes. This paragraph outlines the key micro-principles active in these micro-practices.

As already mentioned before, complexity aims for dynamic understanding (Kellert, 1993 in Tsoukas and Hatch, 2001), it has its focus on dynamic interrelationships and interactions instead of equilibrium and statics. Interesting work in this regard has been done from a process philosophical perspective centered around the concept of 'becoming'. Nayak and Chia (2011:281) build on James, Bergson, Whitehead and Tsoukas and Chia (2002) extending a tradition of thinkers that view 'reality in terms of ceaseless process, flux and transformation rather than as a stable world of unchanging entities'. From a process philosophical outlook, primacy is accorded to 'becoming' over 'being' (Nayak and Chia, 2011:282). Organization is seen in this perspective as an ongoing process of becoming, a process of 'world-making', enabling a dynamic understanding of the micro-practices.

From substance ontology to becoming ontology
According to process philosophical thought, organizations are not seen as solid, stabilized (closed) entities but as 'mediating networks' (Cooper and Law, 1995:239 in Nayak and Chia, 2011) to be construed in action and also individuals themselves are

understood as relatively stabilized effects of social relations as socio-cultural practices and relationships precede individuality. It is obvious that just like complexity thinking, a process philosophical outlook inspires relational thinking.

The traditional field of organization theory has been underpinned by the premises of substance ontology elevating 'substance over activity, discrete individuality over interactive relatedness, descriptive fixity over productive energy, and classificatory stability over fluidity and evanescence' (Rescher, 1996:31-35 in Nayak and Chia, 2011:285), which allowed for explaining the notion of organizational change as the result of a deliberate intervention on the part of purposeful agents working with models like Lewins: Defreeze-move-refreeze. Despite the reservations of more thoughtful organizational scholars, mechanistic thinking about change remains still popular in mainstream organizational research.

A process philosophical approach gives primacy to an ontology of becoming: it views process, flux and transformation as the primary 'stuff' of reality (Nayak and Chia, 2011:289). Change rethought as organizational becoming, is "the reweaving of actors' webs of beliefs and habits of action to accommodate new experiences obtained through interactions" (Tsoukas and Chia, 2002:567). Everyday acts of practical coping, interpretation and sense-making are the facts of 'world-making' (Chia, 2003) and identity construction and language is first and foremost a technology for organizing our experiences. Organizing is first and foremost 'iterative way-finding' rather than 'cognitive mapping' (Ingold, 2000 in Nayak and Chia, 2011:289).

Thinking and talking in terms of becoming

Genuine process thinking takes considerable effort because it is for most people unfamiliar terrain as our conceptual skills favour the static. "For decades questions of transformation remained largely backstage as organizational thinking and practice engaged in a discourse dominated by questions of stability" (Orlikowski, 1996:63). The kind of knowledge acquired through substance ontology 'presents a distorted and reductive view of reality, one that causes us to miss much of what life as actively lived offers' (Nayak and Chia, 2011:291).

Becoming as a process, however, reminds us of the constitutive nature of language but Nayak and Chia (2011:291) argue that besides of thinking, talking in terms of becoming "creates an inevitable tension with the ordering impulses of language that in its very structure, language is oriented towards the representation of static states; repetition and sameness rather than novelty and creativity are privileged. […] A genuine processual form of thinking, must always wrestle with language in order to creatively extend its scope of expression". We dare to state that while we are condemned to language in generating new order, we have to be creative and see this wrestling with language as a challenge. Even if language is our limitation it is

also our (only) hope for generating new order. In analogy of Wittgenstein (1961) 'the limits of our language are the limits of our world', I would like to pone the positive opponent: 'the possibilities of our language are the possibilities of our world'.

Organizational becoming engages with the imagination

Nayak and Chia (2011:304) argue that "rather than capture, represent and functionally deploy the complexities of the real in terms of our knowledge, a processual approach aims to engage with creativity and opens our imagination to 'think beyond' how things are and to point towards new connections and new lines of flight". As such, organizational becoming is more than just a processual view of change. Process thinking is directed towards understanding openness (Cooper, 1976) and becoming that characterizes living systems as their life unfolds.

Even if organization identity theory has given primary attention to collective identities as relatively stable social characteristics (Albert and Whetten, 1985; Dutton and Dukerich, 1991; Hatch and Schultz, 2002), Carlsen (2006:145) outlines a perspective on organizational becoming "as a set of ongoing authoring acts situated in everyday work and simultaneously addressing individual life enrichment and organizational development", a perspective he calls 'dialogic imagination of practice': "Becoming is a stream of experiences and imaginations upon those experiences, in a set of dialogues bumping up against each other and potentially reinforcing one another, thus constituting strong fields of collective meaning and engagement". In this context Carlsen uses deliberately the term 'authoring' instead of 'identity formation' or 'identity work' "for an act of identity construction to attain a symbolic meaning outside its specific temporal and situational occurrence, it must become "text" (Ricoeur, 1971 in Carlsen, 2006:133)".

To get a more dynamic understanding of how identities are constituted in practice, Carlsen (2006) elaborates the construct of becoming in three dimensions of study

- *becoming as process*: identity is about action and about interaction. The attention for research is oriented towards how patterns of identity come into being by acts of authoring in a 'perennially unfinished project' (Knights and Mueller in: Carlsen, 2006:146) in which strategy and identity are fundamentally intertwined. Investigating these patterns directs attention to the formative nature of language and the multidimensional nature of authoring acts;
- *becoming as life enrichment*: identity is more about the future than it is about the past. This dimension of becoming refers to the human agency of reflexively seeking for transformation and meaning. It implies that authoring identities in organizational development may be more about maintaining hope for the future than achieving retrospective coherence. Acts of authoring are never solely retrospective or oriented towards achieving order or stability; and
- *becoming as dialogic imagination of practice*: identity is more about what we do and what we want to do than about who we are in terms of social characteristics.

Organizational becoming asks for reframing the identity in terms of practice
This last dimension of reframing the identity in terms of practice has far-reaching implications:

- "It suggests a broad recognition of the inherent identity dimensions in claims of core competencies, lead concepts, key activities, or similar invoked patterns of practice;
- It suggests a need to consider systematically the life-enriching potential of practices: how forms of work can bring openness, challenge, purpose, generativity, and hope to lived experience, and how such qualities can be used in organizational development;
- Paradoxically, putting practice in the middle reveals what is powerful about identity in organizational development may not be organizational identities, but imaginations whose motivational power accrue from seeing oneself as part of more enduring struggles, movements, and mysteries at the societal level. Ultimately, then, the question is which stories one can make organizational practice belong to" (Carlsen, 2006:146).

For practitioners it is important to realise that in order to become, it is important to focus on what we do and how we talk and think about what we do. Authoring of identities in the context of organization development, attention should be given to daily practice and to the continuous imagination of what practice is, has been and could be. Important is the continuous creation of new horizons of expectation and hope.

Organizational becoming and the narrative mode of thought
For Carlsen (2001) it are the informal practices that create change: "An act, an ambition, a perspective or a pattern of behaviour that does not find its story, that are not told, interpreted or retold in the organizational discourse will never be strategic and never lead to change" (Carlsen, 2001:12). That's why the narrative mode of thought is crucial in understanding change. Change happens in processes of interpretation, in "streams of becoming" (Carlsen, 2001:1) in which development of new practice, new identity and strategizing fuse. The narrative mode of thought is the language of strategic discourse (Barry and Elmes, 1997), the language of becoming-realism. In being-realism, narratives are something out there, waiting to be collected, in becoming-realism the focus from the narratives themselves as object changes to the dialogic context in which they are authored and told (Carlsen, 2001).

As argued in previous paragraphs: Different from 'being-realism' in which reality pre-exists independently of observation, statically in identifiable things, in 'becoming-realism' (Chia, 1996:31) reality is a matter of interpretation. The focus is on how things come to be and priority is given to processes, to "the workings of primary organizing micro-practices which generate stabilized effects such as 'truth',

'knowledge', 'individuals' and 'organizations'. Those organizing micro-practices can be best understood and explained using the narrative mode of thought. It is processes in which narrative constructs function as both mediators (No story, no strategy.) and motivators (collective authoring, identity-work) of strategic change (Carlsen, 2001).

For Carlsen (2001:1) 'the use of narrative theory to understand and describe processes of strategic change is still in its infancy' but the use 'cuts far deeper than formulating witty anecdotes of formal strategies to aid their implementation' while it allows for discovering the interaction between action and emotions and cognitive processes. As already mentioned earlier (2.3.1) the term "narrative thought" is borrowed from Bruner (1986) who contrasts it with "argumentative thought" (the paradigmatic or scientific logic), the latter being the thought and language of consistency and clear logic. Normative science including the classical school of strategy theory is made in that language (Carlsen, 2001).

Narrative thought, Carlsen (2001:4) argues, "is more an offspring of the arts". It seeks to engage in processes of construction of meaning. The language is that of ambiguity, subjectivity, verisimilitude, coherence and emotional appeal. According to Sarbin (1986 in Carlsen, 2001:4) argumentative thought is linked with a worldview of mechanism and narrative thought is linked with a worldview of contextualism, the former trying to confine meaning, the latter trying to generate multiple meanings. In the former objectivity and factuality are emphasized to a degree that meaning is more or less lost, in the latter subjectivity and plausibility are emphasized to a degree that meaning is generated. It is important to recognize that both modes are relevant for strategy, each in its own operating way. By associating strategic change with processes of becoming, the narrative language plays its generative role.

Following Lotman's (1988 in Carlsen, 2001) account of functional dualism of texts, and taking texts as a metaphor for acts of meaning creation, Carlsen concludes that argumentative thought specializes in defining, confining and conveying meaning, and that narrative thought specializes in generating new meaning. Carlsen's point is that strategic change always must entail the latter.

Focussing on organizational innovation instead of change, also Bartel and Garud (2007:107) underline the importance of 'innovation narratives' as 'cultural mechanisms that address the coordination requirements by enabling translation' and interpretation. They enable 'the recombination of ideas to generate novelty, facilitate real-time problem solving and link present innovation efforts with past experiences and future aspirations'. Their accumulation even provides a generative memory for the organization in light of current and future learning (Garud, Dunbar and Bartel, 2011). The narrative mode of dialoguing allows the coherence and flexibility

that enhances productive social interactions across actors and activities by enabling learning through translation and interpretation. Innovation narratives are able to capture 'dynamic complexity', complexity that refers to the interactions among the underlying forces that drive any phenomena (Senge, 1990 in Bartel and Garud, 2007:113).

As interpretation, translation and dialogue play a key role in complexity as well as in organizational becoming, whether in the context of change or organizational innovation, the narrative mode of thought plays a central role in enabling and sustaining the micro-processes.

Table 2.8 Characteristics of two approaches to strategic change – *Carlsen, 2001:12*

Argumentative mode of thought **Being-realism** *(Chia, 1996)*	**Narrative mode of thought** **Becoming-realism** *(Chia, 1996)*
- Tight analysis, accuracy, causal certainty, getting the facts straight; - Adherence to abstract concepts and generalities; - Single voiced, authoritative, objective and neutral; - Seeks to convince, idea of singular readings; - Strategy as object and planning; - Singular identity as enduring core; - Economic man, maximization of profit	- Coherence, plausibility, emotional appeal, demonstrating novelty; - Adherence to particulars and context sensitivity; - Multi-voiced, dialogic, metaphoric and subjunctive; - Seeks to engage imagination, idea of plurivocality; - Strategy as enactment and reflexivity; - Multiple identities as ongoing work; - Dramatic man, enrichment of life story.

2.4.5 Complexity and organization development

Richard Beckhard (2006:3), a pioneer scholar in the specific field, defines organization development as 'an effort planned, organization-wide, and managed from the top, to increase organization effectiveness and health through planned interventions in the organization's "processes", using behavioural-science knowledge'. Anderson (2012) defines it shortly as 'the process of increasing organizational effectiveness'. In the classical paradigm scholars see this as a linear process starting from one objective truth based on facts. In the complexity paradigm this is a whole other process as will be obvious from the above mentioned principles, metaphors and processes of non-linear dynamical systems. The word organization development is not even present in the 2011 Sagebook on Complexity and Management. Focal process in that book is the process of emergence.

Organization development, as a conceptual term related with effectiveness, seems not to be in use in the complexity paradigm. Growing effectiveness in the complexity paradigm is an emerging non-linear process to a higher level of functioning (Byrne, 2011). Byrne (2011:132) argues: "In relation to organizations whose outputs can be defined in financial terms, this reality can be obscured by the reality of money as a continuous variable. Rates of returns on capital employed and changes in share value certainly are measurable in ratio scale terms. However, even for commercial organizations significant change is often qualitative. […] Changes in form are usually nonlinear and involve radical shifts in size and complexity of function".

Already in the introduction of this study we mentioned that the traditional approaches to the study of organization development (OD) are considered by most organizational scholars and practitioners as limited and potentially inadequate in guiding effective practice and research (Eoyang, 2011; MacLean and MacIntosh, 2011; Mathews, White and Long, 1999; Van de Ven and Poole, 1995). There is a general agreement that conventional OD is "failing to meet the 'big' challenges facing contemporary organizations, such as transformational change and disruptive innovation" (Bevan et al., 2007:137).

As a first symptom of a paradigm in crisis, scholars acknowledged a bifurcation early to middle 1980s in the practice of OD between diagnostic practices and dialogic practices such as appreciative inquiry and conceptual approaches like the world-café and future search. The first article on appreciative inquiry was published in 1987 (Cooperrider and Srivastva, 1987).

Diagnostic OD seeks to change behaviour directly while dialogic OD focuses on changing the frameworks that guide what people think and say (Bushe and Marshak, 2009). Dialogic OD assumes that change comes from whole system reconsideration of that which is 'taken for granted' and in this process generating alternatives for social actions (Gergen, 1978:1346). In dialogic OD the consultant act more as a facilitator of events, in diagnostic OD he is the central actor in diagnosis and intervention. Dialogic OD has four characteristics for Bushe and Marshak (2009:361): there is an accent on changing the normal, everyday conversations, there are multiple realities, the aim of the process is to generate new images, stories and narratives and the focus is on changing cognitive maps. Core methodologies of dialogic OD are based more on generative, constructionist social and symbolic interaction and positive psychology rather than on problem solving and positivist action research. Essential in effectuating change in dialogic OD is the power of words and language and their role in changing mindsets.

Dialogic OD however is not necessarily a symptom of working in the complexity paradigm (as becomes evident from the table below) even if the practice of dialogic OD is definitely a symptom of the shifting paradigm in society.

Table 2.9 Contrasting Diagnostic and Dialogic Organization Development – *Bushe and Marshak, 2009:357*

	Diagnostic OD	**Dialogic OD**
Influenced by	Classical science, positivism, and modernist philosophy	Interpretive approaches, social, constructionism, critical and postmodern philosophy
Dominant organizational construct	Organizations are like living systems	Organizations are meaning-making systems
Ontology and epistemology	– Reality is an objective fact – There is a single reality – Truth is transcendent and discoverable – Reality can be discovered using rational and analytic processes	– Reality is socially constructed – There are multiple realities – Truth is immanent and emerges from the situation – Reality is negotiated and may involve power and political processes
Constructs of change	– Usually teleological – Collecting and applying valid data using objective problemsolving methods leads to change – Change can be created, planned, and managed – Change is episodic, linear, and goal oriented	– Often dialogical of dialectical – Creating containers and processes to produce generative ideas leads to change – Change can be encouraged but is mainly self organizing – Change may be continuous and/or cyclical
Focus of change	Emphasis on changing behaviour and what people do	Emphasis on changing mindsets and what people think

2.4.6 Complexity and Design

As will be obvious in the meantime: complexity as worldview is something else than complexity in the daily business of designers. It provides radical new ways of understanding the physical, biological, ecological and social universe. It has a deep influence on the way we can think about design (Alexiou, Besussi and Zamenopoulos, 2008) and the way we can imagine new connections, relationships and processes. Following example illustrates this in an interesting way:

> *"About ten years ago, a group of NASA engineers decided that they wanted to recycle one of their satellites which was drifting aimlessly in space. Its fuel supply was far too low to propel it the millions of kilometres into the desired new orbit, which would enable it to gather information about a comet which was flying into the inner solar system. However, the NASA engineers saw that by exploiting the Butterfly Effect they could still use the spacecraft. It was simply a case of getting the butterfly to make the right flap at the right time, to get the response they desired from the satellite. They chose to exploit the gravitational pull of three objects in space, the satellite itself, the earth and the moon, to set the spacecraft on a chaotic orbit. Such an orbit is fundamentally unpredictable, but there are neutral points in the orbit, where no one body has a greater gravitational influence on the spacecraft than the others. Here, a slight nudge in the form of a short, carefully calculated blast from the depleted fuel stocks will have a big effect, enabling the space craft to be flown repeatedly past the desired observation point, at which time data could be collected. Thus was the theory that comets are large dirty snowballs confirmed, with a satellite that should by rights have been out to pasture. (Stewart (1999) in New Scientist Magazine in Green, 2001:167)"*

Even as this illustration concerns spaceships rather than social systems or cultural systems, it clarifies several points about complexity and design that will be discussed in this paragraph theoretically. First of all it clarifies the fact that insights from complexity science extent the archive of possible human interventions. It also illustrates that we as humans are definitely not helpless in the face of chaotic or complex adaptive systems, but that we do need to treat complex systems differently. The example also illustrates the scale-free interpretation of the mechanisms active in complex systems. Finally, this example illustrates the essence of this research namely how small interventions, well designed, can have (big) effects following the logic of complexity science.

Most of the work so far in the triangle of management, design and complexity has been done in the field of computational complexity. It is about modelling and simulating to manage complex situations (Rzevski, 2011, 201a, 201b, Alexiou, Besussi and Zamenopoulos, 2008). Much less has been researched in the field of social complexity. The organizational studies that have been done in the field of complexity are nearly all done in the explanatory paradigm. They study and explain the behaviour of complex systems such as social insect colonies, brain networks, and social networks. For now we know relatively little about how these insights from complexity science can be applied for the improvement of social systems. Questions of improvement are questions of design: they have primarily to do with intervening instead of understanding and explaining. The intersection of management, design and social complexity for now is still largely terra incognita.

Romme (2003:570), an organizational scholar in the field of design, argues:

> *"Evidently, design projects are embedded in a network of interacting processes, agents, and systems. However, there is hardly any research that approaches the notion of design from the perspective of complexity theory (an exception is the conditioned emergence framework developed by MacIntosh and Maclean, 1999). The application of complexity theory to the co-evolution of design processes and objects is therefore a promising area for future work. Romme argues that scholars in organization studies can guide human beings in the process of designing and developing their organizations toward more humane, participative, and productive futures".*

That this knowledge is much needed in today's society is self-evident. Socio-technological advancements make social systems such as organizations but also society as a whole, function more than ever as open dynamical systems as we can see daily in the news with emerging phenomena such as the Arab spring on an international level but also with emerging phenomena in individual countries and regions such as the case of the 16-year old girl in Haren in September 2012 that announced her birthday too openly on Facebook. It is clear that organizational actions based on the linear logic fall short in this context and that they are often harmful for society on the short term but definitely on the longer term. The changes in society offer a whole new field for design thinking in the context of business innovation and social innovation. It is of utmost importance for decision-takers in organizations to see that conventional systems thinking is not evidently the only resource for design thinking in many of these 'new' fields concerning complex, open systems.

Complexity as a resource for design thinking

Design thinking as an intellectual activity is defined by Owen (2007:17) as

> *"in many ways, the obverse of scientific thinking": scientists sift through facts to discover insights, while designers invent new patterns and concepts to address facts and possibilities.*

It is evident from the previous that concepts and dynamics from complexity science extent the archive of possible concepts and dynamics of designers. It is in working with open systems like organizations that the difference between linear thinking designers and complexity thinking designers becomes manifest: Both will think holistically but linear systems thinking designers will start from reformulating the brief, setting boundaries and conceptualising the ideal image of the future for the system, 'the idealized design' being 'the most effective ideal-seeking system of which designers can conceive' (Ackoff, 1981:107). Complex thinking designers will imagine a wanted direction and they will think in processes of emergence, in relationships between agents, in terms of self-organization, in dynamics and in

processes of interaction with the environment. On top, complex thinking designers working in social systems interpret 'adaptivity' in terms of imagination, of language and of (verbal) cultural codes. They think 'dialogue' and 'interpretation'.

Complex thinking designers don't design a final solution in working with open systems as they realise that a solution can result in a sub-optimal result in case the problem situation asks for evolution. We can see the solution-oriented approach of open systems in many situations resulting in massive unsolved problems as for example in traffic and in situations in many developing countries. In the latter Nussbaum (2011) recently raised the question whether 'Humanitarian Design is the New Imperialism'? His question was based on the fact that often solutions brought to developing countries by designers don't work on the longer term. If local agents are involved in the development of the solution and development processes are interpreted as evolutionary processes, results are often better.

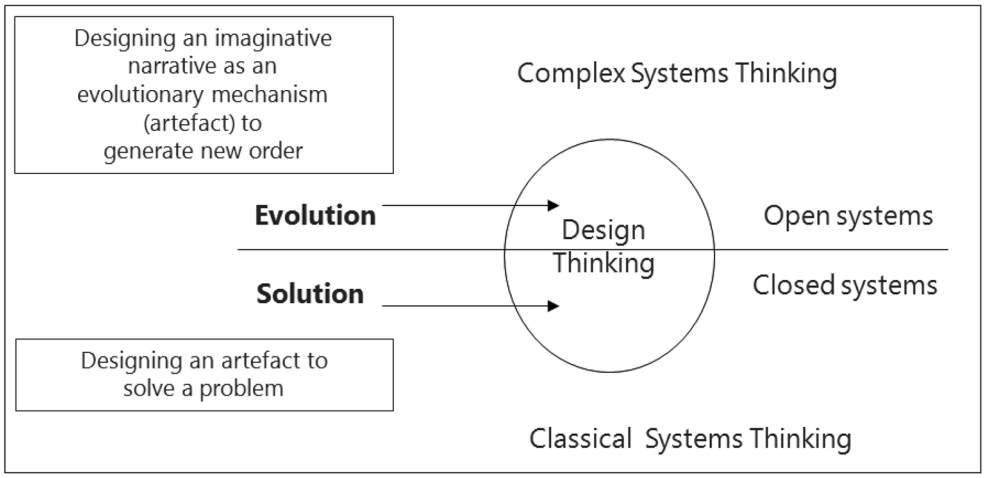


Figure 2.2 Classical Systems Thinking and Complex Systems Thinking as a resource for Design Thinking

Indirect design

Designing for open systems is not a matter of designing solutions but it is a matter of designing for evolution, designing for emergence. It is a matter of indirect design that makes the system adaptive in changing environments. Coping with complex problems in open systems from a complexity perspective is thinking in non-linear dynamics, is thinking in evolution instead of solution. Even if 'design' is now one of the most common words heard in organizations, Hazy (2011) suggests that this will change while the word 'design' implies a false certainty. What a design mindset rewards, are 'designs' that solve the problem finally. What an evolutionary mindset

rewards, are imaginative constructs that open up the imagination realising behavioural change and generating new dynamics and new ideas, processes and directions by inviting stakeholders to become co-designers of the future. An imaginative construct intents to make the organization more adaptive.

Focussing on moving the system instead of reaching an end state
Traditionally design has been conceptualised in terms of products and outcomes as opposed to experiences and processes. Kent and Stone (2008) make the remark that this shift is not an evident one and that even scholars focussing specifically on design and complexity are sometimes couched in these material terms. They quote Van Alstyne and Logan (2007), Canadian scholars working in design and complexity, as they attempt to consider two kinds of design: 'Design that creates new functions or makes a tool more functional or easier to use and design that adds value to a tool (i.e., any product) or service above and beyond its functionality'. The connection between design and solution is so self-evident that an alternative name such as imagineering can be helpful in changing the designers mind set in complex social systems from thinking in solution to thinking in evolution.

Articulating a more desired attractor
Complex thinking designers don't try to reach an end state. They rather try to transform the system by bringing it out of the existing comfort zone/the current basin of attraction by articulating a more desirable attractor in order to generate new order. The generation of new order is sustained by positive and negative feedback loops and they reduce the stability of the undesired attractors. This shifting of attractors transforms the current state towards a more desired pattern of behaviour.

Pattern language
Interesting in this context is the concept of 'pattern language', a concept developed by the architect Alexander. It is a structured method of describing good design practices (micro-elements) within a field of expertise that allows for solving complex problems in an emerging way. Even while Alexander and his ideas are controversial, the idea of building social space starting from micro-patterns that have generative power is an interesting image in the context of redesigning the enterprise logic. Essentially enterprise logic transformation is about redesigning the patterns of relationships from exchange to the patterns of co-creation. Also the word 'language' is interesting in our context as we define imagineering as designing an imaginative narrative (a verbal construct) to generate new order.

'Pattern language' implemented in the context of enterprise logic transformation is relational oriented, attractor oriented and has a fractal nature: it should be possible to interpret it at every level of the organization: as well in the micro-processes as on a strategic macro-level. The relationship between the micro-processes and the

macro-level is typically for processes of emergence. In complexity science both levels are seen as equally important and as equally complex or simple and both are seen as interdependent.

A changing role for designers and new design competencies

As a consequence of the previous, designers working in complex situations in an indirect way have to work with other stakeholders as co-designers. They no longer are 'prescriptors' but 'enablers, facilitators and connectors' when they aim to have a transformative effect in complex open situations. Besides of having the traditional design competencies they should have on top strong 'soft' competencies such as relational abilities, being appreciative instead of behaving as the lonely genius, being very communicative and they should be sensitive for organizational politics. They should have strong values and beliefs and act more as leaders, leading people through processes, than as traditional designers, essentially delivering products. The emphasis is on open, participatory processes and seeing the own design work as part of a broader process in which other stakeholders become co-designers.

Embracing design in complexity

But also the opposite relation is important for the development of the social sciences: the fact that complexity scientists embrace design. In his article 'Embracing design in complexity' Johnson (2010) argues that design is an essential part of the experimental method of the new science of complex systems in the context for example of applications in policy. As design is essential for understanding, creating and managing complex systems, Johnson argues that by the end of this decade, design will be required study for complex systems science, alongside mathematics, statistics, computation and other core topics. To perform experiments with large social systems, scientists are not entitled, they depend of politicians in order to be able to experiment and learn. "The methodology of complex systems science inescapably involves design" (Johnson, 2010:195). To make progress in human systems in coping with complexity there is only one way: politicians have to embrace complexity science and design or they have to trust scientists in doing in-vivo experiments.

Complexity can bring the design mode back on the foreground in the social sciences

Even if the science mode still dominates in the social sciences, 'with the humanities mode as its emerging antithesis and critical opponent' (Romme, 2004:496), the 'new' sciences have the potential to bring not only the social sciences back to the foreground of scientific development as already mentioned before, but, with that also the design mode might be brought back on the foreground in the social sciences.

The epistemological debate between the science and the humanities mode has occupied most disciplines within the social sciences keeping their attention away from

more important commitment as scholars (Wicks and Freeman, 18 in Romme 2004) and driving design research in the social sciences to other sites in society such as consultancy and governmental agencies. On the contrary, in the sciences, the design mode has further been developed and applied in disciplines such as architecture, education and computer science. Complexity now will possibly bring back the design mode on the foreground in the social sciences.

2.4.7 Conclusions of social systems methodology

The main argument in this paragraph on social systems methodology is that complexity in the social sciences is a matter of interpretation and that as a consequence, our modes of thinking and our approaches, methods and tools should be oriented in that direction. In thinking we unravelled the importance of the narrative mode of thinking and the subtlety of complex thinking. The latter should not be mistaken with complexity thinking as thinking that is shaped by complexity metaphors and processes. Complex thinking relates to complexifying of thought processes.

Further we argued in this paragraph that seeing organizations as complex evolving systems (CES) (CAS that can evolve), calls for appropriate methodology: appropriate approaches, methods and tools first of all, to study them and second, to help them evolve.

Concerning methodology to study CES, we argued that complexity theory in essence attempts to explain 'the big consequences of little things' and that in attempting this, complexity has the special characteristic to be able to bridge positivist and post-positivist stances. As well it revolutionizes methodology by bringing in new imaginary which can result in new methods like Fractal narrative analysis and attractor narrative analysis but it also strengthens arguments for existing research methods as for example action research.

Concerning methodology to help CES evolve, this paragraph focused on the managerial implications of non-linear dynamic systems and it reviewed different managerial 'departments' on the influence of the complexity paradigm. Finally, the paragraph argues that complexity offers an imaginary that helps us in changing our thinking about change and how to realise it: focussing on micro-processes of becoming instead of macro-processes of planning and controlling. Again the narrative mode of thought presents itself as the preferred mode in realising change from the complexity perspective.

There is a lot of evidence that points in the direction that change will continue to be a major dynamic in organizational life. Corporations that were once dominant in there industry shrink and disappear and other emerge as if reluctant to competition.

In this challenging environment dialogic OD has emerged more from practice than from theory and it would be great if theory could catch up to bring rigor in our evolutionary processes. One of the possible reasons why practice seems to be more fruitful nowadays is that we are living in shifting paradigms as we already mentioned: the classical paradigm of thinking falls short in its effectiveness in practice. But another reason can be that conventional action research processes "have become too much a part of what normally happens in contemporary organizations to be transformational". (Rothwell, Stavros, Sullivan and Sullivan, 2010:3).

It might also be that the growing complexity of society makes traditional "scientific" and diagnostic approaches to human systems to slow to realise continuous change and that managers recognising these problems expect more from emergent processes than from planned processes. It is obvious that complexity can play an important role in catching up theoretically but also a design approach can come and complement the traditional action research approach in OD; This study tries to combine both perspectives: the perspective of complexity and design in organization development.

2.5 Conclusion on complexity and social systems inquiry

When linearity is to be expected and stability is dominant, the classical thinking of management in terms of command and control can be effective. If non-linearity, instability and complexity are to be expected, the model of command and control is no longer effective. Managing complex problems in social systems such as enterprise logic transformation requires approaches to inquiry and problem solving that are able to deal with complex interlinked processes and multiple social perspectives. The complexity lens is better suited to deal with this kind of problems than the classical lens definitely while processes of change are central in this paradigm.

In this chapter it is argued that a complexity approach to social systems inquiry has a lot in common with the classical approach as it is oriented towards contemporary interests, concerns and sense making preferences and it is a rich interplay between and across disciplines. But in essence the complexity approach differs radically from the classical approach in its conceptualization of social inquiry.

Seeing organizations as complex evolving systems, change is no longer seen as something 'mechanical' but as a normal organic flow of process that is organizational life and order is something to be generated. Change is seen as an ongoing process that should flow constantly through all parts of an organization to sustain it and keep it competitive. And this view influences all actors and all actions and it changes roles and responsibilities in management and organization fundamentally.

As the focus of management is on generating order, the responsibility shifts
- From seeking answers towards making sense of the situation in dialogical processes;
- From being oriented to entities and results towards being oriented to processes and dynamics;
- From predicting and forecasting the future to designing the future direction in an inspiring way;
- From finding the ultimate organization structure towards keeping the structure fluid and adaptive;
- From being blinded by the limits of the organization towards unleashing the dynamic potential of the broader system.

It becomes more evident every day: Complexity fits our time. 'It is what practitioners and researchers need to learn to cope with' (Tsoukas and Dooley, 2011:734).

- From a systems theoretical perspective it is obvious that complexity science offers a new imaginary for seeing and understanding our world which can be summarised with the difference between systems thinking and complexity thinking.
  If in our experiments, the design method was effective in transforming the enterprise logic from the exchange logic to the co-creative logic of value creation then principles and metaphors of complexity science will be recognisable in the after-invention picture.

- From a systems philosophical perspective, the comparison of the complexity approach with other approaches on the five axioms constituting a research paradigm according to Lincoln and Guba (1985, 1982) revealed that complexity is different in ontology, epistemology and axiology but also in the possibility for generalizations and causal linkages.
  This has consequences for the research methodology of this study which we will discuss in dept in chapter 5.

- From a systems methodology perspective finally it becomes evident that complexity in social systems is about interpretation and that research methodology and methodology to help evolve social systems should all facilitate this reflexive, emerging stance.
  Also here, if our methodology of imagineering is effective, it should be possible to discover 'departmental' shifts in action in the post-intervention picture. If effective the orientation of the management should be towards 'evolving' processes of CAS: there should be an orientation towards collective dialogical, reflective processes and there should be a use of integrative, interpretative frameworks that augment adaptability and flexibility of the value creating processes in networks.

This last point brings us to questioning the recent general assumption that managers should become business designers. We suggest that they first of all should become organization designers. Leaders with good facilitation skills that are able to design effective and appealing interpretative frames are pivotal to ensuring that quality processes are maintained.

3 Enterprise Logic Transformation as a process of Organizational Emergence

Abstract

This chapter presents the concepts of enterprise logic transformation and organizational emergence in relation to one another and it reviews research on both concepts with a broad scope: reviewing as well conventional research as complex research and reviewing as well research done in the explanatory paradigm as the design paradigm.

The chapter reveals some essential working mechanisms and models essential for realising organizational emergence such as the role of archetypes in strategic change, the concept of the adaptive tension engine in processes of emergence, the model and dynamics of dissipative structures and the model of 'conditioned emergence', all concepts on which we build our own design method. The chapter ends with a discussion on the integration of these concepts in our design method and with the articulation of the design requirements for realising sustainable enterprise logic transformation through a process of organizational emergence.

"We are now leaving the Age of Reductionism and entering the Age of Emergence."
Nobel Laureate Robert Betts Laughlin (2005).

When you 'understand all about the sun and all about the atmosphere and all about the rotation of the earth', says the philosopher Alfred North Whitehead*, 'you may still miss the radiance of the sunset'* (1926, p. 248).

"Its not magic... but it feels like magic"
Doyne Farmer on 'emergence', Santa Fe Institute

"Perhaps the single most important [shift in thinking that complexity theory provides] is a movement away from explaining why change happens and toward explaining why and how order emerges in the first place (Stevenson & Harmeling, 1990)."
Lichtenstein (2000)

3.1 Introduction

According to Ramirez (1999:55) the value co-production framework with its co-creative logic in value networks is of 'a higher logical type' than the industrial one with its sequential exchange logic in value chains. Therefore it seems legitimate and interesting to study enterprise logic transformation as a typical process of emergence as we described emergence in the previous chapter as the coming-into-being of novel, "higher" level structures, patterns, processes, properties, dynamics, and laws, a new, more complex order that arises out of the interactions among components (agents) that make up the system itself. Turning to emergence offers itself as a way to rethink enterprise logic transformation from being an incremental process that can be planned and controlled towards being a discontinuous organization transformation incorporating a self-organizing logic that can be designed for.

In this chapter we study both concepts, enterprise logic transformation and organizational emergence, in relation to one another and we review research on both concepts with a broad scope: reviewing as well research done in the conventional paradigm as the complexity paradigm and reviewing research done as well in the explanatory paradigm as the design paradigm. The reason to study both concepts with this broad scope is double: at the one hand there is little research done on these specific concepts which makes the potential picture rather thin and on the other hand research done in the conventional paradigm has its merits too as it enriches our understanding of the problem at stake and it reveals the working mechanisms anyway. Objective of this chapter is to set the stage for coming chapter that presents the design method of imagineering. Therefore we end this literature study with a discussion on concepts, dynamics and models revealed in the chapter and with the articulation of the design requirements for the solution concept, the imagineering design method.

The design requirements or specifications are the set of values that articulate what a design is intended to do (Dym and Little, 2004). They provide the "targets" against which the effectiveness of the method can be evaluated. We will make a distinction between

- functional requirements: what the intervention is supposed to accomplish, the results to be realised;
- operational requirements: the conditions under which the results (ideally) can be realised;
- limiting conditions: the conditions that inhibit the realisation of the results.

These design requirements are based on the insights of this chapter and they set the stage for the next chapter.

3.2 Enterprise Logic Transformation

3.2.1 Definition

In their book 'The Support Economy, Why corporations are failing individuals and the next episode of capitalism', Zuboff and Maxmin (2002) argue how managerial capitalism (what we refer to as industrial capitalism) has provided the standard enterprise logic across much of the world over the past 100 years and how it replaced proprietary capitalism (and the form of enterprise logic that dominated the foregoing era) as it could better address the transaction economics of mass consumption and mass production with its organizational forms and practices that delivered low-cost products and services. Zuboff and Maxmin (2002) argue that the emergence of a new economic paradigm generally requires three conditions:

- new customer needs or market conditions;
- new enabling technologies;
- a new form of enterprise logic through which changes in authority and power management practices can be legitimated.

According to the authors, the first two conditions are now realised:

- individuals have now the need of deep support in realising a life of psychological self-determination they have in mind and they contend that these needs cannot be met by organizations locked in the industrial enterprise logic;
- the new digital technologies are able to support the 'smart coordination and collaboration capabilities' to provide affordable deep support for the participants;
- the establishment of a new and appropriate form of enterprise logic, however, has not yet been met according to Zuboff and Maxmin (2002).

Enterprise logic has been defined as

> *'the overall logic shaping a firm's strategy, structure, and management processes into an effective whole'* (Miles et al., 1997:7).

According to Dovey and Fenech (2007:547) enterprise logic refers to 'the deep structure (or ideological underpinning) of an organization and is based upon a set of shared assumptions, values and attitudes that are manifested in the taken-for-granted everyday practices of the organization'. It operates at the unconscious level as the assumptions, values and attitudes become part of the broad cultural expression of a society. 'This is a process in which structural arrangements are put into place (particularly with respect to principles and practices of power and resource management) and gradually become manifest in cultural norms (shared assumptions, or mental models, with respect to 'how the world works'). This ultimately leads to patterns of behaviour that reflect the hegemony of this logic. Over time, a

range of institutional, organizational and individual (socio-psychological) practices, that sustain shared assumptions about the 'reality' of these ideological arrangements, becomes formalized'.

The industrial enterprise logic

Compared to the proprietary logic, the industrial logic required 'a new managerial hierarchy with a relentless internal focus on the control and measurement of production and distribution. Managers and engineers inherited the task of planning and overseeing a minute division of labour to accomplish the standardization, increased throughput, and reduced unit costs necessary to meet the new demands of mass consumption' (Zuboff and Maxmin, 2002:20).The industrial enterprise logic was built on the structural foundations of the functional hierarchy (bureaucracy) and was designed for explicit management control, denuding the organization of individual passion in the interests of rational-legal administration (Weber, 1970 in Dovey and Fenech, 2007).

Bureaucracy could develop with an orientation on calculation and an implementation of dehumanization of the organization. 'Created to transform proprietary capitalist forms of administration into specialized administrative functions operating according to purely objective considerations, the functional hierarchical structure enabled the first wave of globalization and the era of industrial capitalism that underpinned it' (Dovey and Fenech, 2007:575).

The networked enterprise logic

While the functional hierarchical structure served the needs of industrial capitalism very well, profound societal changes catalysed by technological breakthroughs and new competitive pressures, has led to the emergence of radically different criteria for organizational success. There has been growing evidence in the literature that organizational performance in the new era of knowledge capitalism (also called distributed capitalism) 'depends increasingly upon the capacity of organizations to learn and to innovate' (Dovey and Fenech, 2007:575). At the same time these profound changes in the relations between society, technology and nature open the way to liberate organizations and institutions from the industrial exchange logic of value creation (in which producers produce value and consumers consume value) and to evolve towards a new logic of value co-creation (in which all stakeholders are seen as participants in value creation) (Vargo and Lusch, 2004; Ballantyne and Varey, 2008; Ballantyne, Varey, Frow and Payne, 2008).

It is becoming increasingly evident that global changes are impacting the hegemonic logic of industrial capitalism, urging individual 'systems' like nations, institutions and organizations to transform the enterprise logic which often results in

a struggle due to resistance. But what is transformation and what is the possible resistance against it?

Transformation
Compared to adaptation, transformation refers to changes in the identity of a system and qualitative changes in the state of being of that system. According to Bushe and Kassam (2005) such changes have been variously defined as second-order change, radical change and revolutionary change. Adaptive change, on the contrary, keeps the basic nature of the system intact. According to Blumenthal and Haspeslagh (1997) to qualify as corporate transformation, a majority of individuals in an organization must change behaviour. Thus, for most employees, the difference must be palpable. Otherwise one should not speak about transformation but simply about change.

For example, referring to the social transformation in Modern China, Xin Zhang (2006:11) argues that *'unlike the word change, transformation implies a process of combining old elements with the new to transform (in the true sense of the word, to create a new form) a society (Gesellschaft). […] An accumulation that results in the shaping of society into a more complex form of existence, a higher level of social sophistication, from which individuals are more fully capable of dealing with their environment. The result of that process was to transform society from simple to complex'.*

Resistance
About resistance Dovey and Fenech (2007:578) write: *"While leaders in organizations are becoming aware that survival in the era of knowledge capitalism requires radical change, […] this poses a considerable threat to those (managers and workers alike) who have internalized (or who have a personal interest in sustaining) the enterprise logic of industrial capitalism. It is our contention that the primary source of effective resistance to change by managers is the functional hierarchical structure. When change is attempted it is usually on an ad hoc basis, […]. As a consequence, structural and cultural inhibition of change persists in many organizations".*

From this quote it shows that enterprise logic transformation is not just about business model transformation or business process improvement or business process reengineering (Rouse and Baba, 2006) or about changing the industry logic (on which much of today's management literature argues as for example the management bestselling book of Kim and Mauborgne 'Blue Ocean Strategy') but that it is about something more fundamental.

In this study we define enterprise logic transformation as:

> *the process of transforming the deep structure of value creation in a way that a majority of individuals in an organization changes behaviour making it possible for the collective to function in a more complex environment.*

To say it with a metaphor: enterprise logic transformation is more about mastering another style of swimming on top of the original style of swimming than it is about finding another swimming pool or another ocean. Let's focus now on that deep logic of value creation underlying enterprise logic transformation.

3.2.2 The deep logic of value creation

As already mentioned in the introduction, Ramirez (1999) argues that people have always got two modes of value creation, the sequential mode and the simultaneous mode. Technical and social breakthroughs are rendering today the simultaneous mode more relevant. In the connected society roles and responsibilities of marketers and consumers can be rethought in a broader way (Seth and Uslay, 2007). Ramirez (1999:61) considers 'the industrial view as still applicable to a limited set of value creation situations, but 'value co-production' goes well beyond these'.

The two modes of value creation are summarised by Ramirez in the table below (Ramirez, 1999:61).

Table 3.1 Two views of value production – Ramirez, 1999:61

Industrial view	Co-productive view
• Value creation is sequential, unidirectionally transitive, best described in 'value chains'	• Value creation is synchronic, interactive, best described in 'value constellations'
• All managed values can be measured in monetary terms	• Some managed values cannot be measured or monetized
• Value is added	• Values are co-invented, combined and reconciled
• Value a function of utility and rarity	• Exchange the source of utility and rarity
• Values are 'objective' (exchange) and 'subjective' (utility)	• Values are 'contingent' and 'actual' (established interactively)
• Customers destroy value	• Customers (co-)create values
• Value 'realized' at transaction, only for supplier (event)	• Value is co-produced, with customer, over time—for both co-producers (relationship)
• Three-sector models pertinent	• Three-sector models no longer pertinent
• Services a 'separate' activity	• Services a framework for all activities considered as co-produced
• Consumption not a factor of production	• Consumers managed as factors of production (assets)
• Economic actors analyzed holding one primary role at a time	• Economic actors analyzed as holding several different roles simultaneously
• Firm and activity are units of analysis	• Interactions (offerings) are units of analysis

Because of growing connectivity and interactivity, value creation can now be installed in an orientation of mutual interest and with an emergent perspective of co-creating value with participants for society at large. This way every social

opportunity becomes a business opportunity and vice versa. Sheth and Uslay (2007:303) argue: "*Marketing has been expending its credibility in the eyes of business professionals and consumers because of quick and dirty fixes to the bottom line and thus are being increasingly ignored by them (Sheth and Sisodia, 2006). If marketers resist short-term pressure and avoid deceptive, covert practices as the solution to make the numbers, marketing's public image will improve. In this respect, we expect that the value creation paradigm will decrease the pressure to sell and encourage a long-term orientation*".

Paradigm shifts that transform scientific disciplines and the value creating logic in society do not occur frequently and they are not welcomed unanimously and even not easily seen by scientists and practitioners. Ciborra (1995) argues that co-production has been there all the time but that it were industrial-based conceptual frameworks that made us think that we should study production and consumption separately and statically instead of studying them as dynamic relational processes.

3.2.3 Implications of the shift in value creation for the enterprise logic

According to Ramirez (1999) the shift in value creation has implications in four fields of practice and research.

He distinguishes implications for:

- *the business definition*: co-production requires 'that we consider a multiplicity of values, held in relations with multiple actors, which can not be reduced to a single metric (Dean, Ottensmayer and Ramirez (1997:423 in Ramirez, 1999). Interactivity as a focus may lead us to rethink the nature of the firm, it's purpose, objectives, role and responsibility (Rouse and Baba, 2006) moving it from 'noun to verb' (John Seely Brown, personal communication with Ramirez in Ramirez, 1999:55);
- *the way we organise work*: Ramirez (1999:55) considers a value co-production framework as being of 'a higher logical type' than the industrial one. It does not consider the industrial outline (of economies of scale, large, physical production facilities, long production runs, mass markets, task specialization and standardization) as inapplicable but it takes it to be applicable only inscribed in a wider typology of possible forms of value creation which is characterized by scope economics, short product life cycles, reconfigurability, multifunctional teams, 'lowerarchies' and 'heterarchies' instead of hierarchies, stakeholder orientation, value creating networks (value creating systems should be as under-designed as possible (Brand, 1994 in Ramirez, 1999:57)) and so on;
- *the way we manage*: managing complex systems requires managing ignorance, it asks for coordination skills to 'enhance auto-organizational processes in line with current 'Santa Fe' thinking on complexity' (Waldrop, 1992 in Ramirez, 1999:59) allowing people to co-design and to learn and it asks for challenging 'dynamic conservatism' and 'institutionalized inertia' to bridge ever greater

incompatibility. Ramirez even introduces the concept of 'Return on customer base' in this context as customer effectiveness becomes as much a corporate worry as own employee effectiveness; and

– *the transition towards a co-productive economy:* Ramirez (1999) mentions that as younger entrants adapt to co-produce value more effectively, in incumbent companies managerial and organizational innovations often appear according alongside the traditional structures where they are repressively tolerated often seen as threatening the status quo. To avoid this 'bypassing' and to avoid that leaders of innovations become 'cheerleaders' requires further research (Ramirez, 1999:61).

About the 'struggle' and the research that is needed, Ramirez (1999:61) argues: 'Research analyzing how managerial and organizational innovations match emerging business opportunities explicitly using the co-productive framework is only in its beginnings'. He illustrates this 'struggle' with an example in which 'new language' plays a catalysing role: *'Top managers of a major European industrial corporation seeking to redefine its business and its relations with customers recently told the author that a major project: is being coordinated' [not 'managed'] by 'mentors' [not 'project managers'] who will clarify the 'movement' [not 'plan'] which is meant to address the 'drama' [not 'business problems'] that the corporation has been living with. The 'mentors' will do this through several 'processes' [not 'management measures'] which will 'map' [not 'define'] the 'concept' [not 'vision' or 'mission'] which the movement will articulate'.*

Our attention is shifting only recently from the industrial mode of sequential value creation in value chains towards a more integrated approach of value co-creation and co-design. Interesting in this regard is the fact that Ramirez sees the integrated approach of value creation as a higher logical type of value creation and that, concerning the much needed transition or transformation, Ramirez expect the answers to come from the field of complexity science and the thinking developed an the Santa Fe institute.

3.2.4 The role of archetypes in enterprise logic transformation

The fact that industrial enterprise logic and networked enterprise logic are clear and distinguished archetypes of enterprise logic is, according to MacIntosh and MacLean (1999), of high relevance for the transformational perspective as they function as clear and distinctive interpretive schemes, mental models (Senge, 1990), that capture the essence of the transformational process. Greenwood and Hinings (1988) define an archetype as a 'set of structures and systems that reflects a single interpretive scheme'.

From the previous chapter it became evident that complexity science provides a fundamentally different perspective to study change and transformation compared to the conventional organizational theory. While conventional models treat organizations as equilibrium-seeking entities that can change incrementally within the limits of rationality, complex models, especially the model of dissipative structures (a model we discuss in paragraph 3.4.3), provide a framework for understanding discontinuous organization transformation as a relatively rapid transition from one archetype to another.

According to MacIntosh and MacLean (1999) the concept of archetypes is important in the context of organization transformation for a number of reasons as contrary to "the more familiar notions of culture or paradigm", the archetype framework allows for describing the transition in terms of discrete and distinct organizational forms as apposed to movement along a continuum.

It shows from the previous that practices concerning enterprise logic transformation still have to evolve and methods for organization transformation still have to be developed while the need for a proven approach to the management of corporate renewal is overly evident in most industries. It also shows that the direction of complexity thinking is definitely different from the conventional approach to change and transformation but that it might be a fruitful direction. The study of the phenomenon of emergence and organizational emergence will bring us quite evidently back in the field of complexity.

3.3 Organizational Emergence

To have a good understanding of organizational emergence, it is important to have a good understanding of the concept of emergence in general. Unfortunately, even while this concept has a long history and has been studied elaborately by as well 'reductionist' theorists as 'holistic' theorists, there is not yet one general accepted definition of the phenomenon. Nevertheless, nature and practice are going on and the concept of emergence is more popular than ever, most probably influenced by the socio-technical developments in society that enable emergence as never before. In practice, all kind of initiatives are illustrating the phenomenon as can be seen for example in the emerging phenomena of 'Wikipedia': a "higher" level, more complex structure arises out of the interactions among components (agents) that make up the system itself. Recently Lichtenstein (2013) describes generative emergence as the coming-into-being of a sustainable dynamic state. The objective of this study is to find out how we can design consciously to effectuate this kind of processes in the context of existing organizations: we study whether the design method of

imagineering can effectively evoke 'organizational emergence' in a societal more wanted direction.

In order to get a good understanding of the phenomenon, we begin with a brief overview of how emergence has been conceptualized by philosophers and researchers in several disciplines and we compare the phenomenon with the phenomenon of self-organization, a concept with which emergence is often confused. This will lead us to defining organizational emergence and to reflect upon the specific types of organizational emergence: reflexive and non-reflexive emergence. In this context we suggest the existence of imaginative emergence. Finally we focus on what drives organizational emergence: we study the concept of adaptive tension as we see this phenomenon as a crucial element in potential constructionist approaches such as imagineering.

3.3.1 Emergence

Emergence is a phenomenon that has always existed. It is the reason why there are hurricanes but also traffic congestions, rock concerts and democracies. The phenomenon has been studied by 'reductionist' as well as 'holistic' theorists (Corning, 2012), but it is still not clear what 'counts' as emergence, and how we 'measure' emergent levels (Lichtenstein, 2012) let alone how we design for emergence in human settings which is the focus of this study. Even in evolutionary theory, the field of origin of the concept, emergence has an ambiguous standing. In all disciplines researching emergence, the questions focus on 'whether emergence provides an evolutionary 'force' that can explain the many qualitative leaps that permeate the evolutionary record' (Lichtenstein, 2012).

Emergence, the "coming into being" of new processes, structures and entities (Lichtenstein, 2008:2), is a natural pattern of change that can easily be recognised in times of 'emergency', a closely related word and phenomenon. In case of emergency, a disturbance interrupts ordinary life and spontaneously people take on different tasks. This natural way of changing provides an alternative for the mechanistic thinking about change. Simply put, emergence is order arising out of chaos. This leads Corning (2012) to make the remark that 'self-ordering' is a better term to use in this context of emergence than self-organization which has become a buzzword that is often used rather uncritically.

As a theoretical concept emergence is a 'venerable term in evolutionary theory that traces back to the latter 19th and early 20th centuries' (Corning, 2002:19) as the pioneer psychologist Lewes already used the term 'emergent' (instead of resultant) arguing that certain phenomena in nature produce 'qualitative novelty' – material changes that cannot be expressed in simple quantitative terms; they are emergent

rather than resultants (Corning, 2012:297). Already Aristotle wrote: 'The whole is something over and above its parts and not just the sum of them all…' (Book H, 1045:8-10 in Corning, 2002:19). In the social sciences the notion designates the fact that 'something qualitatively new grows out of something existing and is elaborated in systemic approaches to theorizing change' (Boulding, 1956 in Zittoun, Baucal, Cornish and Gillespie, 2007). From the perspective of emergence, change is a matter of generating momentum in a new (desired) direction. In a more popular way Johnson (2001:18) defines the concept as 'the movement from low-level rules to high-level sophistication'.

For Corning (2002:25), a complexity scientist, there is no universally acknowledged definition of emergence. He explains the concept by the metaphor of the game of chess:

> *"…the game of chess illustrates precisely why any laws or rules of emergence and evolution are insufficient. Even in a chess game, you cannot use the rules to predict "history" — i.e., the course of any given game. Indeed, you cannot even reliably predict the next move in a chess game. Why? Because the "system" involves more than the rules of the game. It also includes the players and their unfolding, moment-by-moment decisions among a very large number of available options at each choice point".*

> The most elaborate recent definition of emergence was provided by Goldstein (1999) in the inaugural issue of *Emergence:* For him emergence functions not so much as an explanation but rather as a descriptive term pointing to the *coming-into-being of novel, "higher" level structures, patterns, processes, properties, dynamics, and laws and how this more complex order arises out of the interactions among components (agents) that make up the system itself.*

Many perspectives can explain phenomena and processes, but no one perspective addresses the fundamental issue of the coming into being of emerging processes, except the perspective of emergence. It tries to understand why and how such a process, a community or an organization comes about in the first place and transforms itself periodically over time (Chiles et al., 2004).

In essence this is also the difference between the 'reductionist' position and the 'holistic' position in researching emergence: "Reductionism, or detailed analysis of the parts and their interactions, is essential for answering the "how" question in evolution—how does a complex living system work? But holism is equally necessary for answering the "why" question—why did a particular arrangement of parts evolve? In order to answer the "why" question, a broader, multi-leveled paradigm is required" (Corning, 2012:295). Emergence has gone in and out of favour since the

end of the 19th century. It went out of favour in the 20th century because of the dominance and economic success of reductionism in the industrial context.

Because of the great development of the science of complexity and the evident link between complexity and emergence, the concept is currently re-emerging. Complexity science, the study of complex systems, is particularly well suited for developing a general model of emergence (Lichtenstein, 2008; McMillan, 2008; Holland, 1998; Kauffmann, 1993; Nicolis & Prigogine, 1989). With its emphasis on interactions and the role of interactions on emergence, complexity science provides an ideal method and theory for explaining the process of spontaneous adaptation and transformation to changes in circumstances (McMillan, 2008; Lichtenstein, 2008; Goldstein, 2011; Uhl-Bien et al., 2007). Among other things, complexity theory gives also mathematical legitimacy to the re-emergence of emergence. With the growth of scientific interest in the phenomenon of complexity and the development of new, non-linear mathematical tools, emergence re-emerged in biology, physics and chemistry. From the mid-1980's, much of the work on emergence was fuelled by the discoveries at the Santa Fe Institute in New Mexico. Now the concept of emergence flows as an important theme through the studies of complexity (McMillan, 2008).

The process of emergence leads to the development of something else, it is a process that leads to certain outcomes but this can as well be new order as dissolution, failure. While this is most probably the most likely outcome of an emergence process, this outcome is virtually never described (Lichtenstein, 2013). Virtually every description of emergence or self-organization focuses on the positive outcomes of these processes. Before turning to organizational emergence, we first explain the difference between emergence and self-organization.

3.3.2 Self-organization and emergence

While a clear terminology is essential in every research discipline, we now focus on the different characteristics of self-organization and emergence. One of the sources of the confusion between both concepts comes from the fact that a combination of both phenomena often occurs in dynamical systems but they each emphasise different properties of a system (De Wolf and Holvoet, 2005; Heyligen, 1989). Both phenomena are not synonyms. And even while they mostly occur in combination, they can also exist in isolation from one another.

As characteristics of emergence, De Wolf and Holvoet (2005) name:

- *The micro-macro-effect:* Properties at the macro-level arise from the interactions at the micro-level;
- *Radical novelty*: Macro-level emergents are not reducible to the micro-level parts of the system;

- *Coherence*: There is a logical and consistent correlation of parts. Emergents tend to maintain some sense of identity over time. This coherence is also called *'organizational closure'*;
- *Interacting parts*: Parallelism is not enough. Macro-level behaviours arise from interactions;
- *Dynamical*: Emergents arise as the system evolves in time;
- *Decentralised control*: There is no single part of the system that directs the macro-level behaviour. That behaviour emerges from local mechanisms only;
- *Two-way link*: The parts give rise to an emergent structure and the emergent structure influences the parts. Higher level properties have causal effects on the lower level *(downward causation);*
- *Robustness and flexibility*: Emergents are relatively insensitive to perturbations or errors. Increasing damage will decrease performance, but degradation will be 'graceful'. Individuals can be replaced, yet the emergent structure can remain.

Self-organization according to De Wolf and Holvoet (2005:7) is *'a dynamical and adaptive process where systems acquire and maintain structure themselves, without external control'.*

As characteristics of self-organization they name:
- Increase in order that arises in complete autonomy (note that not every increase in order is self-organising), without an external agent imposing it;
- Adaptability or robustness: The system can cope with change and maintains its organization autonomously;
- Dynamical, i.e. far-from-equilibrium: self-organization is a process. The system needs to be far from equilibrium in order to maintain the structure.

Because emergence and self-organization each emphasise very different aspects of systems behaviour, there are few similarities and more differences. The main similarity is that both phenomena are dynamic processes that arise over time. The main difference is the existence of the micro-macro-effect in the phenomenon of emergence. But as already mentioned: in most systems that are considered in literature, emergence and self-organization occur together. The only way to get a coherent behaviour at the macro-level in most systems, is to let that behaviour arise and organise autonomously by self-organization as complex systems are simply to complex to be directed by simple individual agents.

To understand the emergence of system level properties, it is key to discover the mechanisms, the 'rules', that guide the interactions among the agents within it (Monge and Contractor, 2003; Mohrman and Shani, 2011). It are rules such as 'Move work to low-cost regions' and 'Seek to avoid paying the cost of having liability for externalities' that underpin global capitalism and that have to be replaced by other

meta-rules such as 'take actions that build long-term sustainability' in order to evolve to a more sustainable global economy (Mohrman and Shani, 2011). If agents follow the rules, structures emerge. This last example already brings us in the field of organizational emergence.

3.3.3 Organizational emergence: non-reflexive, reflexive

Emergence in social systems has produced new technologies, towns, democracy, and some would say also the capacity for self-reflection and creativity (Holman, 2010). Emergence is important and unique while it occurs at multiple levels within and across organizations, but on top it is a process that creates new "levels" of organizing (McKelvey & Lichtenstein, 2007). But for Lane et al. (2011) a key element in our understanding of emergence in (human) social organizations is still missing. He argues: "Our current understanding of emergence is based for the most part on models and theories that emphasize bottom-up processes of interaction among entities with very limited agency: these entities are usually construed as rule-following; and if they are endowed with the possibility of constructing new rules, the processes through which they do so are generally modeled as random".

Recently Goldspink and Kay (2010:47) studying emergence in organizations argue philosophically about the general failure in history "to distinguish between the mechanisms of emergence present in systems comprised of simple material or biological agents and those associated with systems comprised of human actors". They argue that "it is reasonable to expect that what can emerge changes as the fundamental characteristics of the agent changes. Human agents are distinctive in the ability to distinguish 'self' from 'other' and in so doing to reflexively interact with our environment". Not making this distinction 'limits our ability to develop a coherent understanding of organization'. Even while the mechanisms of self-awareness, consciousness and the capacity for language are still not well understood they suggest to make a distinction at least between reflexive and non-reflexive emergence as they can say with confidence that there will be a qualitative difference in the range of emergent dynamics observed between systems of agents which possess such capabilities and those that do not. They suggest following definitions:

- *Non-reflexive: where the agents in the system under study are not self-aware, and;*
- *Reflexive: where the agents (actors) in the system under study are self-aware and linguistically capable.*

Building further on their philosophical reflections on organizational emergence, we think it is reasonable to argue that because of the unique property of the imagination (the ability to see things other than they are by making new connections), it is reasonable to see imaginative emergence as a specific case of reflexive emergence:

- *Imaginative: where the agents (actors) in the system under study are self-aware, linguistically capable and use their imagination.*

'Imaginative emergence'

For a very long time imagination has been neglected in economic theory while it is difficult to model and it was not seen as so important (Wentzel, 2006; Loasby2007). Having opted for the supremacy of reason, economic theory has cut itself off from the most ascendant and superb of human faculties, imagination, the source of novelty, the basis of men's claim to be makers and not mere executants of history (Shackle, 1972 in: Loasby, 2007:2). As the economy becomes ever more knowledge-based, it becomes more important to explicitly 'look deeper into the dynamics of imagineering (Wentzel, 2006:13): the dynamics of invention, innovation and entrepreneurship'. In next chapter we will look deeper into these dynamics.

Building on the previous it will be evident that self-organization in social systems differs crucially from self-organization in nature and that 'it is intelligent human action, imagination and a growing knowledge that supports the process' (Witt, 1997:506). Arguing about the evolution of the economy, evolutionary economists see macro-economic processes as dissipative structures that are typically different from these processes in nature while they are influenced by intelligent and imaginative individual agents in interaction with one another.

Social constructionism

Zooming in on the micro-processes of how change happens in organizations, newer models that take into account the non-linear self-organizing dynamics of change (Dooley, 1997) focus on the generation of new order as being a process of a self-adjusting flow of conversation and coordination. According to Ferdig and Ludema (2005:172-173) generating new order is "an ongoing, evolving process created moment by moment in the micro-level interactions among organizational members at all levels throughout the organizational system".

According to these authors it might be the case that because of its origin in physics that many applications of complexity theories to organizations tend to "remain locked in a mechanistic view of change. What these perspectives miss is the uniquely human characteristic of meaning-making through language". Human beings change their world and shape their organizational reality through language (Zandee, 2011).

It is on this point that social constructionism makes a contribution to the literature on organizational change in complex systems as it places the dynamics of communication front and centre as the primary means by which change is generated. Social constructionism suggests that "changes in the way people talk to each other (conversational norms and processes, conversational content, narrative slope, etc.) creates changes in the way people act" (Gergen, 1994a, b and Shotter, 1993 in Ferdig and Ludema, 2005:173). According to social constructionists it are the qualities of conversation we embody, that determine the ways in which we jointly create the realities

to which we aspire. As a consequence it is by changing the qualities of the conversation, including who talks to whom, when, where, why and about what, and in what way that change can be effectuated in a sustainable way. Short: it is by, what Ferdig and Ludema (2005) call 'transformative interactions' that transformative change can be realised.

With these insights in organizational emergence we can now turn to 'use' emergence in organizational settings with a design perspective. But before we do so it is important to understand existing 'misunderstandings' of the phenomenon in social settings and to answer still one other question: What drives organizational emergence? What mechanism initiates the whole process of emergence? What mechanism can evoke transformative interactions? That are the two questions we answer in next paragraphs.

3.3.4 Misinterpretations of emergence in social systems

In translating insights from emergence in general into emergence in human systems, Holman (2010) argues to take care for misinterpretations. "Its not magic... but it feels like magic", is a quote from Doyne Farmer, fellow at the Santa Fe Complexity Institute, about the phenomenon of 'emergence'. Associated with magic, it is understandable that the phenomenon falls easily victim to misinterpretations of research findings which Goldstein (2011:68) calls 'folklore'. Addressing them is important to interpret our empirical findings not as 'magic'. According to Goldstein there are four major 'folklores':

- *Complexity arises suddenly from simplicity*: It is a misunderstanding that the emergence of complexity is always a simple process: "Most of an organism most of the time is developing from one pattern to another not from homogeneity into a pattern" (Turings quoted in Goldstein, 2011:68);

- *Order for free'*: This concept from Kauffman (1995) is by organizational researchers often wrongly interpreted as that emergence is more likely to take place in the face of a relaxation of or dismantling of the normal command and control hierarchy. Moreover, not only are very important determining conditions of emergent order often neglected, it also neglects that some emerging order, like for example cancer, is not beneficial at all (Goldstein, 2011/68);

- *The 'edge of chaos'*: So far, no evidence is found for the existence of a 'pregnant' zone during the evolution of a complex system that should be called 'the edge of chaos';

– *Emergence only takes place through self-organization*: Emergence and self-organization are often used rather synonymously while they are not and because of the appeal of self-organization, structuring operations are often neglected. Even if self-organizing processes play a role in emergence, if complexity is all about order creation (McKelvey, 2001), then a main issue should be how emergent order is constructed (Goldstein, 2011:70). Focussing on the phenomenon of the adaptive tension engine leads us in this direction.

3.3.5 Adaptive tension as a driver for organizational emergence

So far complexity scholars have identified two distinct drivers of emergence:
– far-from-equilibrium dynamics that trigger order creation, and
– adaptive tension (McKelvey, 2004) which can push a system toward instability, leading to the emergence of new order.

Even when both are related to one another, their framing is fundamentally different which gives a different perspective of causality.

The far-from-equilibrium approach refers to a state of being, an ongoing systemic condition that triggers change: An entire system moves into a regime that is away from equilibrium which leads to non-linearities, adaptive tensions, and ultimately to perturbations of novelty that leads to new order (Lichtenstein, 2009:2).

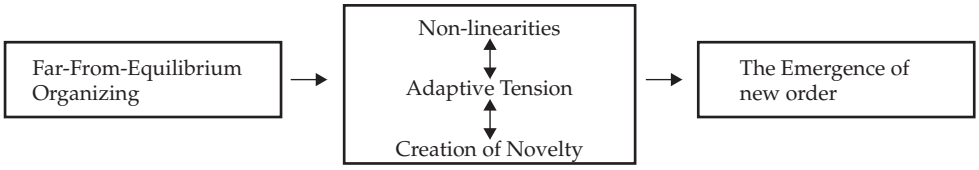


Figure 3.1 Far from Equilibrium as the Driver of Order Emergence – *Lichtenstein, 2009*

The adaptive tension approach suggests a nearly opposite ordering: it is the increase of adaptive tension that drives the system far away from its equilibrium norm. It is an internally felt urgency to act that leads to the emergence of new order.

Adaptive tension builds on an interpretation of Prigogine's dissipative structures theory (Nicolis and Prigogine, 1989) in which order creation is caused by and initiated through 'energy differentials'. In Prigogine's own field of thermodynamics, dissipative structures appear in the behaviour of heated liquid. Adaptive tension then is the catalyst, the driver that initiates a dynamic state that leads to emergence

and order creation. According to Chiles et al. (2010) it is this laboratory context that leaded to interpretations of self-organization theory.

Translated to organizational settings, this insight places too much emphasis on environmentally imposed 'adaptive tensions' in which agents respond to external forces, opportunities and resources (Leifer 1989 and McKelvey 2004 a and b in Chiles et al. 2010:28). In more recent work on emergence in human settings, entrepreneurs are seen as the creators of adaptive tension that drives processes of emergence. Doing so there is 'a place for man' in Prigogine's theory of self-organization by the use of the 'imagination' (Loasby, 2007:1743). This insight is crucial in our argument on the design approach of imagineering. In our approach we suggest that we can design for this 'adaptive tension' in order to evoke 'emerging processes' in human settings.

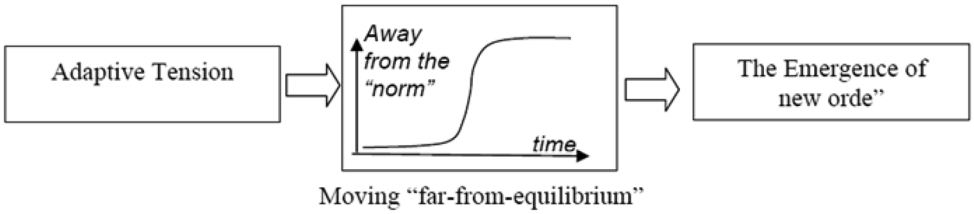


Figure 3.2 Adaptive Tension as the Driver of Order Emergence – ***Lichtenstein, 2009***

Based on the role of the entrepreneur as a creator of adaptive tension, Lichtenstein (2009) suggests speaking about 'opportunity tension' as an alternative concept for 'adaptive tension' as this concept also captures the entrepreneurial passion that is inherent in the drive for order creation and emergence. It is this internally felt opportunity tension which pushes an agent to act. In his most recent work, Lichtenstein (2009:3) also mentions the central dichotomy which exists in the literature on opportunities as these can be both: recognised vs. created. This in fact leads us to see imaginative tension as an alternative for opportunity tension in which we see opportunity tension related to recognised opportunity and imaginative tension as related to created opportunity.

What is essential in this context is the fact that "energy differentials need to have a motivational valance attached before they can be expected to be felt as tension by agents" (McKelvey, 2001:195). This motivational valence is the felt belief that the opportunity is viable and worth pursuing (Lichtenstein, 2009). It is this internal opportunity tension or imaginative tension that effectively pushes an entrepreneur or individual agent in general to change behaviour in the envisioned direction in the collective setting of a value network which leads to the generation of new order.

Maguire and McKelvey (1999:16) argue that "CEO's can actually create emergent complexity by going to work on managing the adaptive tension engine".

Reflections on managing the adaptive tension engine

Formulating positive or negative?

Reflecting on managing the adaptive tension engine in practice, one can think of the examples of 3M and GE: 3M created an adaptive tension by mandating 30% of revenues must derive from products introduced in the last four years. At GE it is said that Jack Welch created adaptive tension by making it clear that each division must be first or second in the marketplace or it will be sold or closed down. It is easy to see that adaptive tension stimulates learning and innovation but it is interesting to see that in both examples of 3M and GE the adaptive tension is formulated in a negative way and we question whether this is the only way or even the best way to manage the adaptive tension engine.

Centrality of the business conception

According to Witt (1998) entrepreneurs can use the business conception to influence motivation, coordination and imagination which leads us to the suggestion that the business conception can possibly used as an adaptive tension engine. A business conception is a tacit cognitive frame collectively shared within the firm. It plays a key role as it informally and socially shapes employee's cognitive frames of motivation and action through socialization and communication. Entrepreneurial agents in the firm have the possibility to shape these cognitive frames in order to influence motivation, coordination and imagination in building productive knowledge profitably. For many companies and institutions the existing business definition, as a mental map, is entrenched in the machine model of organizations and in the industrial logic of exchange. Reframing the business conception seems to us to be a possible route to enterprise logic transformation.

A business conception is not in itself a plan. "It represents the interpretative framework which furnishes the decision maker with a general orientation and a general associative basis for deriving and assessing action information" (Witt, 1998:166) and it leaves room for interpretation and innovative action. It leaves room for the individual imagination oriented in a shared direction. The creation of new patterns rests on imagination, not logic, typically stimulated by a perceived inadequacy in established patterns' (Loasby, 2001:7).

In line with the existence of 'imaginative emergence' we suggest that managers and entrepreneurs can design for 'imaginative tension' as a specific case of opportunity tension in human systems as they can evoke an inspiring innovation horizon. (This process will be explained in depth in next chapter.)

The central argument of our study is based on the assumption that we can design for imaginative tension by redesigning the business conception as to effectuate imaginative emergence.

The redesigned business conception should inspire

- From a relational perspective: changing the orientation in the micro-processes from exchange logic to co-creative logic;
- From a relevance perspective: changing the orientation from shareholder value towards value creation for society at large as to cause tension in all kind of stakeholders to participate in the processes of value creation;
- Articulating the adaptive tension engine/ business conception in the narrative mode as this mode has heuristic and holistic properties. It engages people not only rationally but also emotionally and it orients people not as much towards procedures and routines as to substance and conceptions.

Centrality of the imagination

Evolution essentially requires imagining what to achieve and how to achieve it (Loasby, 1976, 1991). It is the continuous interpretation of the individual agents that generates new order. "The basic premise is that imagination always operates by making new connections, thereby creating new structures: imagination creates order" (Loasby, 2007:4). We suggest that imagination is crucial in generating new order and as such 'reframing' (making new connections that allow others to see new possibilities for action) is essential in generating emergence in social systems. If such a redesign makes it to an integration in the companies' or institutions' logo, it can steer all 'new' creative interactions/micro-processes in the same wanted direction leading to organizational emergence, a functioning of the organization on a higher logic of complexity.

A new role for managers: managing the adaptive tension engine

Based on this reasoning it is important to realise that cognitive commonalities may emerge spontaneously but that sometimes certain individuals are in a position that they get the chance to shape the informal communication processes and thus to exert influence on the collective outcome. While the agenda of formal communication can be determined, the agenda of informal communication is difficult to control and open to rival cognitive frames and social models. In this theory cognitive leadership is an important entrepreneurial skill. When entrepreneurial leadership loses out to routine administration and governance, the existing coordination capacity is still there but the interactions in the firm change their character: individual initiative and innovativeness disappears and the firm becomes immobile and utilizes no longer its repository knowledge to act solution oriented. In a complex, turbulent environment this affects a firm's adaptability significantly.

The central practice of this study: Using the logo to change the logic
It will be evident that redesigning the business conception as the adaptive tension engine to evoke emerging processes is something else than 'adding a slogan to the logo'. It is using the centrality of the logo as a mechanism for organizational development, organizational learning and organizational emergence. In this regard it is interesting to see the difference in logos of organizations and institutions designed in the industrial era and those designed in the networked era. The former group contains often the name of the founder while the latter group doesn't. The latter group uses as their names narratives as 'simple rules'. For example Facebook instead of The Zuckerberg Corporation as to

- give the feeling of being a societal platform;
- keep an openness that allows continuous evolution;
- easy and evident for all stakeholders;
- inviting and enabling all possible stakeholders to co-create via the micro-processes;
- build an emerging (relevant) platform.

3.4 Research on organization transformation and organizational emergence

After having studied the phenomena of enterprise logic transformation and organizational emergence, we now turn towards research in both fields and we do this with a broad scope reviewing as well conventional research as complex research, and reviewing as well research done in the explanatory paradigms as the done in the design paradigm. The reason to use this broad scope is triple:

- First: we did not yet find specific research in the field of enterprise logic transformation;
- Second: there is relative little research done on organizational emergence in general which makes the picture rather limited and
- Third: Even while conventional equilibrium models are said to be no longer effective in today's turbulent environments, transformation research done in the classical paradigm definitely has its merits. Besides of giving a deep perspective on the problems and challenges at stake, some of the researches done from the explanatory perspective definitely reveal 'working mechanisms' and some of the research done from the design perspective can definitely be judged as effective, even while they are said to be 'experimental'.

Therefore we decided that a broad and rich picture of research might best suite the objective of this chapter: setting the stage for the following chapters: chapter 4 in which we present the design method of imagineering, chapter 5 in which we present the methodology used in this study to evaluate the design method of imagineering and chapter 6 in which we present and evaluate our research findings.

Table 3.2 Typology of research on Organization Transformation and Organizational Emergence

	Explanatory Paradigm	Design Paradigm
Complexity Paradigm	Plowman et al. (2007) Chiles et al. (2004)	MacIntosh and MacLean (2001) And reflections of Goldstein (2011)
Conventional Paradigm	Jacobs and Heracleous (2005) Meyer (2000) Etc.	Bevan et al. (2007) Herstein and Mitki (2008)

3.4.1 Insights from conventional transformation research

Research in the context of changing the nature of the game in the conventional paradigm is done under different names such as enterprise transformation (Rouse and Baba, 2006), corporate transformation (Blumenthal, 1994; Collins and Rainwater, 2005), organization transformation (Armenakis, 2007; Griffin, 2008), business transformation (Hoyte and Greenwood, 2007; Morgan and Page, 2008), strategic change (Fiss and Zajac, 2006; Sonenschein, 2010; Nilsson, 2010) and strategic innovation (Means and Faulkner, 2000; Govindarajan and Gupta, 2001; Schlegelmilch, Diammantopoulos and Kreuz, 2003; Jacobs and Heracleous, 2005; Markides and Anderson, 2006; Chapman Wood, 2007).

Even while there is a general belief supported by empirical research that conventional approaches to realise fundamental change working the-blueprint-way are predominantly unsuccessful (e.g. Beer, 2000; Elrod & Tippett, 2002; Kotter, 1995; Pettigrew, Woodman and Cameron, 2001), it is definitely interesting to reflect on the 'working mechanism' they discovered.

A coordination problem

In essence it is generally accepted that strategic change or strategic innovation is in the first place a problem of coordination as for example Meyer (2000) reveals in his research in the context of transition economies (as in the context of the evolution from plan to market economy). In trying to explain why things went wrong in the Soviet bloc at the end of previous century, Meyer (2000) argues that leadership and common knowledge among stakeholders are crucial in overcoming coordination failures. Crucial in moving to a higher level equilibrium is the belief among stakeholders that others are sharing common knowledge and that others are also switching to the new routines. "To induce an agent to change behaviour, he not only needs to learn the new routines, but he has to form the belief that other agents will also change their routines in such a way that his new routine will make him better off'. (Meyer, 2000:11). (The coordination problem in the Soviet case will be explained more in depth in next chapter.)

This is also the conclusion of Cooperrider (2012) after several decades of theorising and fieldwork with appreciative inquiry: It is essentially the collectively experience of the wholeness of their system that brings forth the best in human systems. Collaborating beyond silos unleashes a natural positivity which makes possible transformational change.

Leadership and language

For Meyer (2000) and most scholars studying fundamental change processes, leaders can play a pivotal role in moving an organization or even society from one stable equilibrium to a more superior one. Concerning future research, Meyer for example mentions: 'Theoretical research should deepen the analysis of coordination problems in transformation processes, analysing for instance under which circumstances agents behave cooperatively and/or follow the direction proposed by a leader'.

Together with leadership, language and especially 'framing language' is seen to play an important coordinating role in sustaining fundamental innovation as it involves not only a shift in structures and processes but above all a cognitive organizational reorientation (Fiss and Zajac, 2006). This cognitive organizational shift is based on a shift in existing mental models (Jacobs and Heracleous, 2005) that has to affect many stakeholders in order to realise transformational change.

A process of sense making and sense giving

The re-articulation of the mental model or interpretive scheme to instigate strategic change is a process of sense making and sense giving by the CEO or another authority or authoring responsible group (Gioia and Chittipeddi, 1991; Gioia and Thomas, 1996). The sense making process consists of the development of a 'vision' or mental model of how the (new) environment works and then, consecutively, the sense giving process consists in being able to communicate to others and gain their

support (Hill and Levenhagen, 1995). In this second phase a strategic image for the organization is designed taking into account the generative power of the organization in the competitive landscape and this image is expressed in 'visionary and evocative terms' (Gioia and Chittepeddi, 1991:442). Afterwards the sense making process starts at other levels of the organization when employees try to find out the meaning of the proposed strategic change for their role and relationships.

Innovation narratives enable translation

Realising strategic innovation is not just a matter of generating ideas but is above all a matter of coordinating and sustaining innovation on the longer term in every detail of action. Bartel and Garud (2009) who share the insight that organizational innovation is first and foremost a matter of coordination, suggest that 'innovation narratives' are crucial cultural mechanisms to sustain organizational innovation as they typically facilitate productive social interaction. They provide at the same time coherence and flexibility. Bartel and Garud (2009) define narrative as 'a set of events and the contextual details surrounding their occurrence and they distinguish structural and provisional narratives. Structural narratives offer a point of view on a situation through the use of a plot (Bruner, 1986; Czarniawska, 1997; Polkinghorne, 1987 in Bartel and Garud, 2009), provisional narratives capture fragments of activity without a clear plot (Boje 1991, 2001 in Bartel and Garud, 2009). The power of narratives in organizational innovation is based on the fact that narratives enable translation.

According to Latour (1994:32 in Bartel and Garud, 2009:108) translation implies "displacement, drive, invention, mediation—the creation of a link that did not exist before and that to some degree modifies two elements or agents". Bartel and Garud propose that 'it is through translation that innovation narratives enable people to gain an appreciation of the resources that exist in different parts of the organization and to draw on them to generate new products and services or novel ways of solving problems in their own work contexts'. Narratives act as translation devices in idea recombination, in resource recombination and in solving real-time problems as they offer the possibility for 'generative imitation' (Tarde, 1962 in Bartel and Garud, 2009) and for 'interpretive flexibility' (Pinch and Bijker, 1987 in Bartel and Garud, 2009). Narratives also have the capacity to interest stakeholders because of the element of familiarity besides of the elements of novelty they have (Barry and Elmes, 1997).

With their holistic property innovation narratives have a stabilizing effect as they allow for seeing the own activities in the bigger picture of past, present and future and this property of narratives allows also to capture 'dynamic complexity' (Senge, 1990 in Bartel and Garud, 2009): the tensions and forces that drive an emerging phenomenon in relation to established operations.

A social fabric as a learning mechanism
Organizational innovation is often hampered not by the amount of ideas but specifically by the problems with integrating ideas and activities with others. Often it is difficult for people to understand why they should leave their own routines for ideas or activities of others, often from other departments. Therefore the creation of a social fabric that provides coherence and flexibility can inspire collaborative practice. For Bartel and Garud (2009:115) the question 'how organizations that lack a narrative infrastructure can build one' is an important question for future research.

3.4.2 Conventional organization design research

Organizational change is one of the new emerging fields for design. The relationship between the field of organization science and design is not entirely new (just remember Herbert Simon, 1996) but an explicit concept of design and design interventions emerged only slowly in this era. For a long time 'the academic discussion has neglected the significance of design and the rich variety of design practices that could affect organizational life and lead to new organizational structures and processes' (Buchanan, 2008:3). It were conferences such as 'Managing as Designing' in 2002 at the Weatherhead School of Management at Case Western University that put design explicitly on the agenda of Business Schools, often under the term of 'innovation' and in that first period explicitly taking practices of architecture as an aspirational metaphor for design thinking in management (Boland and Collopy, 2004). Some of the papers of those first conferences that brought together organizational scientists and designers resulted in a special issue of 'Organization Design' (March-April, 2006) and also of 'Design Issues (Winter, 2008).

For organizational scholars such as Mohrman (2007:13) the concept of organization design science has emerged in response to the difficulty human beings have in designing organizations that can handle the complexity in today's world. Organizational scholars have an important tradition in optimizing existing situations using action research, a kind of research that fits into Simon's broad conceptualisation of design of 'changing existing situations into preferred ones'. Action research is an interactive inquiry process that balances problem solving actions implemented in a collaborative context with data-driven collaborative analysis or research to understand underlying causes enabling future organizational change (Reason and Bradbury, 2001). Organizational scholars however make a difference between action research and design research as the latter has a stronger focus on action and there is a minor focus on theory development (Trullen and Bartunek, 2007) and also, typical for design research, is the creation of an 'artefact'. Design research can help in developing management theory but does so in a different way than action research does. Recently some organizational research has been done from an explicit design perspective in the classical paradigm. We use them as illustration in the boxes below

and we discuss them already from a complexity perspective taking into account the learning from the research done in the classical paradigm.

What's interesting in both these 'design cases' (which both were said having been effective in their transforming intentions) is the fact that there was a clear (most probably unconscious of complexity features) orientation on and an enabling of the shift in thinking of the individual agents in order to enable a shift in routines in the individual actions/micro-processes. There is a clear coordination of the expected shift in behaviour of individual agents as everybody involved realises that all stakeholders have the same information/invitation, that the shift is supported by the total community. At the same time the designed artefact allows interpretation on every level in the organization and everybody realises that the end result becomes better from the own interpretations and actions.

Even if these researches are not done in the complexity paradigm, rethinking existing routines is enabled by the designed artefacts. Of course these cases are not designed to transform something as deep as the enterprise logic. Consumers and external stakeholders are not (yet) enabled in the case of Bevan et al. (2007). The 10 rules won't enable other stakeholders to join forces in value creation. In the case of Fattal Hotels this could have been a possibility, integrating the customers and other external stakeholders in the transformation and organizational emergence could happen eventually. But the transformation orchestrated by 'Hospitality is all about love', was only implemented with an internal orientation as far as can be judged from the consulted publications.

Besides of these two examples that are explicitly called design interventions in organization studies, the practical approaches used by organizational consultants such as appreciative inquiry and World Café can also be categorised as organizational design interventions as they share the same solution-oriented approach. It is this characteristic that typifies most practical approaches brought by consultants and that distinguishes them from the more problem-oriented approach of conventional organization research. The academic world in organization science was keeping the route of action research because of its theoretical perspective leaving the more subjective and sometimes questionable (from an academic perspective) design interventions to the world of consultants and practice.

Organization design scientists looking into the direction of complexity

But times are changing also in organization science. Now that it is generally accepted that the classical field of organization development and planned change has become irrelevant (e.g. Bradford & Burke, 2004 and Greiner & Cummings, 2004 in Mohrman, 2007:14), organization design scientists are looking in the direction of complexity science. They tend to recognize that seeing change as a complex responsive process

in which the whole of the organization should be involved in a self-organizing and dialogical way, are remarkably more successful than the change approaches that see change initiatives as linear, sequential and predictable.

Illustrative in this context is also the fact that Cooperrider, the scholar that 'invented' appreciative inquiry in 1986 in his doctoral study, is linking appreciative inquiry to complexity science in his recent work (2012): "Appreciative Inquiry believes in the power of early beginnings. And as we know, starting points — like the questions we ask and the curiosity we bring to the table — can have big effects. In complexity science, this phenomenon is called sensitive dependence on initial conditions where a small change at one place can result in large differences to a later state […]". This quote illustrates how insights from complexity can complement our conventional understanding concerning organizations not in the least of processes of change and transformation. In the next paragraphs we focus on research done in the complexity paradigm.

Box 3.1 Example 1 of conventional organization design research

Bevan et al., 2007. Using a Design Approach to Assist Large-Scale Organizational Change: ''10 High Impact Changes'' (the 'artefact') to Improve the National Health Service in England.
Change fatigue made practitioners together with scholars search for a different approach which resulted in an orientation on the meaning of design in health care situations.
Design thinking as a new way of working resulted in the five core design requirements:

- create high-leverage change principles;
- do less more thoroughly;
- quantify potential benefits;
- design a 'package' of the product, the person and his context to enable immediate use;
- create pull, not push design rules that people are willing to use instead of 'have to' use.

These requirements resulted in the design of the **"10 high Impact changes".**

1. Treat day surgery (rather than inpatient surgery) as the norm for elective surgery
2. Improve patient flow across the whole National Health Service system by improving access to key diagnostic tests
3. Manage variation in patient discharge, thereby reducing length of stay
4. Manage variation in the patient admission process
5. Avoid unnecessary follow-ups for patients and provide necessary follow-ups in the right care setting
6. Increase the reliability of performing therapeutic interventions through a care bundle approach
7. Apply a systematic approach to care for people with long-term conditions
8. Improve patient access by reducing the number of queues
9. Optimize patient flow through service bottlenecks using process templates
10. Redesign and extend roles in line with efficient patient pathways to attract and retain an effective workforce

Source: National Health Service Modernisation Agency (2004).

At the time of implementation, the UK government had embarked on an efficiency review and this project and the "10 High Impact Changes" that were produced became centre-stage of the national program with push and pull components. The "10 High Impact Changes" became the content of a guidance of which more than 20.000 hard copies were distributed within the NHS. It won the prize for the best productivity improvement program in the British public sector.

Results: There has not been any quantitative study to measure the impact of the '10 High Impact Changes', and even if there had it would have been difficult to distinguish what change was a consequence of this project and what from other contemporaneous initiatives. Also, the implementation differed in different locations as each location had put accents on the rules that were most interesting in the specific location. Locally there were indeed great results and the 'design-way' of working inspired governmental work in other fields of problems and it also inspired other countries such as Australia in their work with health challenges.

Box 3.2 Example 2 of conventional organization design research

Herstein and Mitki, 2008; Mitki and Herstein, 2011, From branded to endorsement corporate identity strategy: The case of the Fattals Hotel Management Group

The realisation that corporate success not only depends on increasing effectiveness but also on designing and developing the image concerning service among all stakeholders, made the company decide to enter a corporate identity design process. Optimization of the service quality is needed in all cases because of growing competition. For Fattals Hotels the artefact that was designed: 'Hospitality is all about love', functions as a learning mechanism for all involved employees.

Hospitality Is All About Love

The process that was followed to build the renewed, endorsed, corporate identity is explicated:

First step: Senior employees of the company's management and general directors of the individual hotels brainstormed in two different teams about how to differentiate the chain from its competitors. Participants were encouraged to think freely and even 'crazy' (unorthodox for the sector) to generate the greatest possible number of ideas and to integrate and improve ideas during the discussion.
Second step: Conclusions were presented and resulted in the insight that Fattals could not differentiate itself from its competitors based on specific aspects of the service or the accommodation but that it could do so based on a perfect and complete hospitality experience. The slogan "Hospitality is all about love'" was designed. Service should feel as 'care' and not as a 'necessity'.
Step three: An internal manual was designed and with this booklet separate meetings were held with each of the hotel divisions. In parallel, the chain began to communicate the image change to external stakeholders in which the customers.

Results: The transition from a branded corporate identity to an endorsement corporate identity resulted internally in highly motivated and more committed employees speaking a common language and adhering comparable values. Externally, satisfaction grows highly with customers. 90 percent of local customers now stated that 'they would consider one of Fattals' hotels as their first choice in planning their next vacation' (Mitki and Herstein, 2011:462).

3.4.3 Complexity studies on emergence in the explanatory paradigm

Studies of emergence in the complexity paradigm have extended our understanding of many organizational phenomena.

Table 3.3 Complexity studies on emergence in different organizational phenomena – *Based on Hazy, Goldstein and Lichtenstein, 2007*

- Innovation (Cheng & Van de Ven, 1996; Saviotti & Mani, 1998; Rivkin, 2000, 2001; Garud, Gehman and Kumaraswamy, 2011);
- (Social) Entrepreneurship (Stevenson & Harmeling, 1990; McKelvey, 2004; Lichtenstein et al. 2007; Goldstein, Hazy, Silberstang, Schultz, 2009; Lichtenstein, 2008);
- Organizational learning (Carley & Svoboda, 1996; Carley & Hill, 2001; Garud, Dunbar & Bartel, 2011);
- Organization design (Garud et al., 2006 ; Siggelkow & Rivkin, 2006 ; Siggelkow & Rivkin, 2005)
- Strategic adaptation and organizational evolution (McKelvey, 1999 ; Morel & Ramanujam, 1999 ; Gavetti & Levinthal, 2000 ; Rivkin & Siggelkow, 2006);
- Leadership and emergent order in groups and organizations (Marion & Uhl-Bien, 2001; Uhl-Bien et al., 2007; Hazy, Millhiser & Solow, 2007; Lichtenstein & Plowman, 2009) among many others.

On the construct of emergence itself, complexity scholars have already explored the dynamics of emergence at multiple levels of organizing (Brown & Eisenhardt, 1997; Chiles, Meyer & Hench, 2004; Garud, Kumarswamy & Sambamurthy, 2006; Levinthal & Warglien, 1999; Watts, 1999 in: Lichtenstein, 2008:2).

Two empirical studies that are often referred to in organizational studies are the studies of Plowman et al. (2007a) and the one of Chiles et al. (2004):

- *the emergence within organizations (Plowman et al., 2007a);*
  A decision to offer breakfast to homeless people led to radical change in a church and its environment. While existing theories of change do not fully explain observations, complexity theory constructs are used to understand more profoundly how and why such change emerged;
- *the emergence across organizations (Chiles, Meyer & Hench, 2004).*
  A best selling novel, *The Shepherd of the Hills*, published in 1907 "served as a magnet, drawing many curious visitors" to Branson, a forgotten location. In the meantime Branson has become the second most popular US tourist destination after Orlando, Florida, a phenomenon that is hard to explain with existing theories.

> In the study of Chiles et al. (2004) complexity theory is used to explain the emergence of a new organizational collective: the Branson Missouri's Musical Theatres. Taking a case study approach, four dynamics of emergence posited by complexity theory's dissipative structures model, are used to explain how the collective came into being and periodically transformed itself over a 100-year period.

What is interesting in this context is that we perceive the 'breakfast for homeless people' and 'the best selling novel of 'The Shepherd of the Hills' both as adaptive tension engines. Both, of course were not consciously designed to evoke organizational emergence but with hindsight we tend to interpret both 'events' as narrative artefacts that cause fluctuation and that support fluctuation for a considerable amount of time.

These studies and the way they make use of complexity theory to explain organizational emergence, inspire us for our own methodology to evaluate whether our imagineering method evokes organizational emergence or not. What both studies have in common is the fact that they use the model of dissipative structures to explain why and how emergence happened.

According to MacLean and MacIntosh (2011:237) 'the field of complexity theory offers two views of change processes mirroring natural processes: the edge of chaos view and the dissipative structures view.

- The edge of chaos view stems from biology and it argues that living systems can exist only in a zone on the edge of chaos, a zone between a region of chaotic behaviour and one that is frozen, with little spontaneous activity (Kauffman, 1993; Solé et al., 1993 in MacLean and MacIntosh, 2011);
- The dissipative structures view predates the edge of chaos counterpart and stems from physics and physical chemistry (Jantsch, 1980; Prigogine and Stengers, 1984). This view describes 'qualitative, system-wide changes which occur episodically, in distinct phase transitions initiated by some external trigger' (MacLean and MacIntosh, 2011:237).

Both views are used in organizational change research but they typically emphasize different conceptual themes, a polarization that is akin to the issue of evolutionary vs. revolutionary change. Contrary to the 'edge of chaos' viewpoint, management writings on 'dissipative structures' have a somewhat broader and evolutionary focus and according to MacIntosh and MacLean (1999:302) "they present more detailed examinations of the ways in which order can emerge from chaos through the interaction of rules, deep structures, and organizational processes". The concept of deep structure is an important element that is central in the distinction between the dissipative structure's model and the 'edge of chaos' model. Whilst deep structure

appears to play no role in the latter, dissipative structures rely on deep structure as a quasi-permanent, invisible substructure which remains largely intact while restructuring. Deep structure "forms the basis for the self-referencing processes which occur during self-organization".

Already in the eighties, complexity scholars such as Gemmill and Smith (1985) and Leifer (1989) turned towards this model to explain organization transformation and even more generally, parallels are found between the dissipative structure model and the evolutionary orientation in the work of organizational scholars such as Karl Weick on self-designing systems and the work of Chris Argyris and Donald Schon on organizational learning (Gemmill and Smith, 1985).

Seen the broad acceptance and use of the dissipative structures model in organizational work, Jantsch (1980) suggests that this model, drawn from observations in the physical sciences, is not simply an analogy, "but expresses an implicate ordering of elements and processes that exist across biological, organizational, and social system levels. The striking parallels in this regard between all dynamic systems point into the direction of what Bohm (1980) calls an 'implicate order'. Therefore it seems quite evident to choose this model for our own research (see methodology chapter 5).

The dissipative structures model

The 'dissipative structures' model pioneered by physical chemist and Nobel Laureate Ilja Prigogine and his colleagues, became an important theoretical underpinning shared by many of the organizational complexity scholars that employ the idea of emergence. The model demonstrates that energy input to an open system with many interacting components, operating far from equilibrium, can give rise to a higher level of order (Merali & Allen, 2011:41). When internal and external conditions of a system are turbulent enough, it can push an organization out of the limited parameters where it was able to maintain equilibrium. "When these conditions happen, the system may either dissipate amidst disorder or attain a more complex and appropriate alignment, a new ordering far from its initial equilibrium (Gemmill and Smith, 1985:753)". The dissipative self-organizing process is the driving force behind the evolution of all systems, also of human systems.

The early work on the application to social systems of a 'dissipative structures' framework to organizational transformation by Leifer (1989), Gemmill and Smith (1985) and Smith and Gemmill (1991) reveals a common set of related events. MacIntosh and MacLean (1999) explain:

– "First, the organization is moved out of its normal equilibrium state, due either to internal or external fluctuations;

– whilst in nonequilibrium conditions, it experiences a breakdown of its existing structures and some symmetry-breaking event which serves to irreversibly sever the possibility of reconstructing them;
– there follows a period of experimentation during which the organization selects a new form of behavior which 'aligns' with its deep structure and order emerges in the system as the new behavior 'resonates' across subsystem boundaries".

In the later work with this model, the research of Chiles et al. (2004) and Plowman et al. (2007a), demonstrates the value of conceptualizing organizational evolution in terms of emergence as modelled by the dissipative structures framework. The usability of the construct of emergence in these cases proves once more the fact that there is an alternative way that organizational structures, strategies, and practices, can arise. New order can arise not just from power but also from self-organization and emergence (Potts, 2011). And as already explained: this self-organization does not imply a laissez-faire style of leadership but the enabling context, an empowering orchestration and a continuous nurturing of events and processes right from the beginning aligned with the model and dynamics of dissipative structures.

These researches have been analysed specifically by Lichtenstein (2008:2) and "although these two studies are based on different samples and utilize different analytic methods, nevertheless both identify and empirically confirm the same four sequences-conditions (constructs or dynamics) which, in combination, appear to generate emergent order in a micro-, meso- and macro-context". These sequences or dynamics of emergence are:

– dis-equilibrium organizing – 'Fluctuation dynamics';
– amplifying actions – 'Positive feedback dynamics';
– resources interdependence and (re)aggregation – 'Recombination dynamics';
– stabilizing feedback – 'Stabilization dynamics'.

"That a single set of system characteristics can produce a phenomenon (emergence) across many orders of magnitude suggests", according to Lichtenstein (2008:2), "the presence of a 'scale-free' theory for emergence". The two researches have identified four sequences in a process that reveals co-evolutionary and behavioural dynamics of emergence at each of these levels. In next paragraph these four sequences are introduced as we will use the technique of pattern matching in our own research: we will ask ourselves whether the dynamics below are recognisable in our own experiments.

The dynamics of the dissipative structures model

A primary concern of complexity theory has to do with the emergence of order 'which manifests itself through emergent self-organization which occurs as a limited number of simple order-generating rules operate across a densely interconnected

network of interacting elements to selectively amplify certain random events via positive feedback. This propels the system away from its current state toward a new, ordered state in a way which is largely unpredictable.' (MacIntosh and MacLean, 2001:1346). The process manifests itself through four dynamics or sequences which are subscribed below. In the two researches mentioned above, these dynamics of emergence have been explored in a rich context.

- *Fluctuation dynamics*: Ever-increasing injections of energy create an 'adaptive tension' that pushes the system out of equilibrium into a disequilibrium state (McKelvey, 2004). Sustaining this disequilibrium state for an extended period is said to be a prerequisite aspect of emergent order creation (Lichtenstein, 2000; Meyer, Gaba, Colwell, 2005; Leifer, 1989). 'Order through fluctuation' is central to the dissipative structures model (Prigogine and Stengers, 1984).
- *Positive feedback dynamics*: Once in disequilibrium state, small actions can be amplified through positive feedback loops and a cycle of self-reinforcement. A process of 'deviation amplification' (Maruyama, 1963) creates a dynamic whereby the emergence of one action in the system increases the likelihood of a 'scaffold of emergence' (Holland, 1995). Despite the absence of a central controller, the system's components 'communicate' as they are connected in a web;
- *Recombination dynamics*: The emerging new order of dissipative structures implies that some of the existing elements of the system must be reconstituted to generate new combination (Gemmil and Smith, 1985; Smith, 1986) through a key dynamic known as recombination, a dynamic that helps us understand how self-organizing systems evolve (Anderson, 1999) and how novelty and variety are generated (Hodgson, 1997 in Chiles et al. 2004).
- *Stabilization dynamics*: Stabilization dynamics and mechanisms play an important role in moving the system into a new order or configuration. Stabilization is not as much about equilibrium but about the deep structure, principles, values and basic social rules, about the framework that facilitates a collective mind, shapes novelties and guides choices in a way consistent with the system's accumulated history and learning, preserving the system's identity and core behavioural patterns (Smith, 1986).

These are the four dynamics that are recognised by Chiles et al. (2004) and Plowman et al. (2007a) in processes of emergence and these are the characteristic dynamics we should recognise in our own 'research-results' if the design method of imagineering is effectively evoking organizational emergence.

3.4.4 Complexity studies on emergence in the design paradigm

The research cited in previous paragraph tries to explain emerging phenomena. The point of interest of organizational designers, of course, is whether this process of emergence can also be initiated, whether it can be designed for. Even while it is not

possible to predict (or control) accurately what happens in the future because of sensitivity of initial conditions and non-linear behaviour of dynamical systems, complexity scholars such as Jantsch (1980), MacIntosh and MacLean (1999, 2001, 2011), Maguire (1999), Lichtenstein (2007, 2008, 2009), Lane et al. (2011) and Goldstein (2004, 2006, 2011) argue that it is possible to design for this kind of processes in human systems up to a certain limit. Pascale (1999:85) notes that 'one cannot direct a living system, one can only disturb it' but we suggest that also disturbing a human system to evolve in a more desired direction is a way of intervening that can be designed for. MacIntosh and MacLean (1999:306) articulate explicitly that "organizations have the capacity to bring about a change in archetype through consciously creating the conditions in which successful transformation can occur".

In the context of designing for emerging processes, different names are used. Goldstein uses the term of 'self-transcending constructional approaches', Lane speaks about 'directed emergence' and MacIntosh and MacLean use the term of 'conditioned emergence'. According to Goldstein (2011) research is now underway in order to determine what exactly is involved in the self-transcending constructional approaches that can guide organizations 'toward granting greater adaptability'. Also Lane is doing research in the context of 'directed emergence' on this very moment. Only MacIntosh and MacLean already developed a framework for the management of organization transformation called 'conditioned emergence' on which they published. Therefore the coming paragraphs are predominantly based on their work.

Building on the sequence resulting from the work of Leifer (1989), Smith and Gemmill (1991) and Gemmill and Smith (1985), MacIntosh and MacLean (2001:1346) developed a model with a prescriptive nature, detailing the managerial interventions associated with each stage. They argue that 'the range of broad possibilities is, to some extent, contained within the set of simple rules which was applied to generate the new order'. This led them to 'develop a method which attempted to manage emergent transformation processes at the level of order generating rules in order to capitalise on the dynamics of self-organization while exerting some influence over what is typically thought of as an unpredictable process'.

But their work also differs in some fundamental and important ways from the previous work as they adopt the sequence of the process as presented in earlier work but they make use of the concept of deep structure and they link it explicitly to organizational rules which comprise organizing principles and business logic. These 'simple' rules are then "surfaced, reframed, and enacted as a key part of the transformation sequence" (MacIntosh and MacLean, 1999:303); as such the prescriptive aspect of their framework is based "on 'management' of deep structure, or organizational rules which remain visible during the 'chaotic' period of a transformation process".

By focussing on the management of deep structure they accept the possibility but reject the necessity of 'pure' self-organization in social systems.

Three key insights from complexity informed this model:
- New order can be generated from a set of order-generating rules: here the scholars see parallels with the work of Tranfield and Smith on 'routines' and the work of Argyris on 'defensive routines'. MacIntosh and MacLean (2001) see behavioural routines as an expression of some order-generating rules and they see 'defensive routines' as elicited by rules that were once useful, but which are now acting as constraints;
- Positive feedback is a mechanism that can drive an organization from one state to another but the scholars were struck by the dominance of organizational negative feedback mechanisms (e.g. budgets, forecasts, progress reports, corrective action plans etc.) in organizational functioning to day and the comparative lack of any formal positive feedback mechanisms;
- To facilitate a change to its order-generating rules, an organization must experience far-from-equilibrium conditions. This is closely linked to the unfreezing notion of Lewin but here there is a specific emphasis on changing the order-generating rules during the unfreezing process.

The conditioned emergence model developed from these insights is presented as a three-phase approach to dealing with rules, disequilibrium and feedback processes:
- *Conditioning*: The central orientation in complexity science is the generation of new order through the repeated application of simple rules. In order to transform the existing order from one archetypical order to another one, the organization must identify the deep structure and rules which underpin the current archetype (mental map). These rules must be reframed as to make it possible for the organization to emerge around those new rules. Thos new rules, the new deep structure (which may involve some of the old rules alongside new ones) must be agreed upon on the forehand. Those new rules may be process oriented or content-oriented or both;
- *Creating far-from-equilibrium conditions*: Having done the conditioning work, the organization must now move to far-from-equilibrium conditions in order to create the space for the new structure in which the new deep structure can take hold. According to MacIntosh and MacLean (1999, 2001) this can be caused by the onset of a crisis and this can be real or precipitated. They expect that, while residing in such unfamiliar territory, the system becomes typically more open, often developing the capacity to import energy and export entropy, i.e. in Prigoginian terms: it behaves as a dissipative structure. In order to be effective, this condition should persist long enough. In this period as well process (the way we do things) as content (what we do) aspirations should emerge and take hold as broadly defined by the rules;

– *Managing feedback processes*: The scholars expect that old and new forms will compete in the unstable phase far-from-equilibrium, and they argue that it depends on positive and negative feedback efforts whether the new organizational form will take hold and that the system won't revert to the old form. Definitely traces of the former archetype will remain and there will be pressure to apply negative feedback to restore the old, known, archetype. Management should encourage now anything which reinforces the new rules and archetype.

This model was tested with mode2research, a method that is characterised by a constant flow back and forward between theory and practice, in an application in a manufacturing organization in the UK (manufacturing complex mechanical products) which existed already for more than 100 years.

– First defensive routines were detected like 'Don't innovate unless it leads to cost reduction', 'when looking for savings, hit soft targets first';
– Instead of formulating new rules, senior management saw 'shutting the factory for a day and taking the entire organization off-site to discuss the company's future' as a disequilibrium effort while this never happened so far in the history of the company.;
– The only detailed prompt that was provided to the rest of the organization was 'responsive leadership': i.e. from now on the company should compete on the basis of responsiveness and lead-times rather than technology or cost. It was encapsulated as "better, faster, cheaper" as an explicit rule to evaluate new courses of action.

According to MacIntosh and MacLean (1999, 2001) the most important conclusions of this illustrative case study are:

– a new set of order-generating rules did appear spontaneously, typically in the cognitive domain or else, in the interpretive scheme (Greenwood and Hinings, 1988) or the 'mental maps' (Senge, 1990) of the organization. "The new rules were expressed during discussions within the organization and this points to the role of reflexivity in identifying (or some might argue creating) rules in social systems" (MacIntosh and MacLean, 2001:1353);
– that while the scholars thought the model was a sequential one, the three phases happened concurrently in this specific situation;
– "organizational transformation can be viewed as an emergent process that can be accessed and influenced through three interacting gateways, i.e. order-generating rules, disequilibrium and positive feedback" (MacIntosh and MacLean, 2001:1353).

Based on this research the authors conclude that organizational transformation can be viewed as an emergent process of a relatively rapid transition from one archetype to another and that the model of dissipative structures introduces a degree

of prescriptiveness by proposing a three stage process which differentiates it from other managerial interpretations of complexity theory. The framework of conditioned emergence shows that by managing at the level of deep structure in social systems, organizations can gain some influence over self-organizing processes which are typically regarded as unpredictable in the natural sciences. The scholars argue further that "the influence is limited to archetypical features and that detailed forms of behaviours are emergent properties of the system" (MacIntosh and MacLean, 1999:297).

3.5 Discussion and articulation of design requirements

Our work builds on the concepts discussed in this chapter though our developed framework of imagineering which we present in next chapter, differs in some fundamental and important ways from the previous. Leaving the presentation of the design method for next chapter, we think it is interesting to articulate our thinking in relation to the previous on this moment in the study and to articulate our insights and reflections finally in the design requirements for realising successful organizational emergence through self-organization.

3.5.1 Discussion

The essence of our approach: Starting from the prescriptive position and the framework of conditioned emergence, we think that a 'real' design approach to emergence, in the sense of the design and use of an artefact, is possible in order to evoke the process of emergence. While the approach of MacIntosh and MacLean was still framed in action research, we frame our approach in the field of organizational design research. We explain our stance building on the insights articulated in this chapter.

First of all, we think that enterprise logic transformation is an interesting subject to study in the context of designing for organizational emergence as it is a typical process of evolving from one archetypical deep structure to another one which is seen as a higher logical type: an evolution from the industrial deep structure of value creation (seeing organizations rather as closed entities) to the networked deep structure of value co-creation (which sees organizations explicitly as open, evolving systems in co-evolution with their environment) in order to be able to function under more complex conditions.

Interesting in the context of realising strategic change is the fact that the model of dissipative structures offers a route to integrating process and content in a dynamic

framework: managing the strategic direction by managing deep structure (content) is combined with a self-organizing implementation (process) of the emerging process of transformation. The focus in the model is on managing the deep structure and not on managing the operational systems and procedures. The focus is on managing the process of the transformation and not on the content of the transformation.

Reflecting on the sequential logic in the framework of 'conditioned emergence', the work of Chiles et al (2004) and Plowman et al. (2007a) seems to us to confirm the findings of MacIntosh and MacLean (1999) that contrary to the sequential logic, things happen simultaneously once the fluctuation is introduced. As a consequence it seems to be more evident to conceptualise the model as 'dynamics' in the context of organizational emergence than to conceptualise the model in stages.

- The 'first stage' of conditioning then is about discovering the existing deep structure and constructing the more desirable deep structure and articulating that more desirable deep logic in an artefact that transforms the dialogue in the organization as it asks for rethinking day-to-day actions, processes and procedures. In this context we see the construction of the desired deep structure and the articulation in an imaginative artefact as the formulation of the adaptive tension engine of McKelvey (2004). The conceptualisation of the new deep structure in a reformulation of the business conception on a new archetypical logic, creates a tension to reflect on existing practices and procedures and this adaptive tension engine then causes fluctuation. People, individual agents in organizations) start to rethink and experiment with new acting.
- The 'second stage' of creating far-from-equilibrium conditions then can be realised by integrating the new imaginative artefact in the identity of the organization. This can be done by adding it in the existing logo. As such it informs and invites external stakeholders as participants in value creation of the organization. But at the same time it prevents the organization from reversion to the former archetypical logic while integrated in the logo the new logic functions as a promise in the market.
- The 'third stage' of managing the feedback processes, we suggest, should be interpreted more broadly as 'managing the dynamics of dissipative structures'. For example, Gemmill and Smith (1985) argue that stabilization dynamics, besides of positive feedback dynamics, play a crucial role in successful transitions. We have the impression that this dynamic is rather neglected in the model of conditioned emergence of MacIntosh and MacLean. According to Gemmill and Smith (1985) the dissipative structures model postulates "that "inherent stabilities" make more probable a system's successful transition through highly unstable conditions. These same stabilities offer a point of convergence of current theories of organizational learning, of self-organizing systems, and of high performance teams".

The articulation of the intended direction in an imaginative artefact is definitely the distinguishing element of our approach compared to the approach of 'conditioned emergence'. It is an approach that is better suited to cope with the acknowledged 'risk of reversion', a risk that is reported on by MacIntosh and MacLean mentioning that 'negative feedback exerts continuous pressure to revert to the previous archetype'.

Applied in the context of enterprise logic transformation, the adaptive tension engine should in essence do three things: First the adaptive tension engine should reorient relationships as in the networked logic customers and other stakeholders are seen as 'participants' in value creation. Individual agents should start to see themselves as active value creators. Second, the adaptive tension engine should reorient value creation on the point of 'relevance' for society at large. Shareholder value should be a consequence of exceeding on the first point: that as well internal as external stakeholders feel inspired to become active participants in value creation with the organization. Finally, articulating the adaptive tension in the imaginative narrative mode enriches the artefact with heuristic and holistic properties:

- Heuristic: appeal positively and imaginatively to all kind of stakeholders. It can open their mental map in the direction of a new, relevant, innovation horizon in a way that they start experimenting;
- Holistic: it engages individual agents as well individually as collectively, it engages them as well rational as emotional and it stimulates recombination of existing resources across entities.

3.5.2 Design requirements

For any design assignment, the designer first starts with understanding the design problem and articulating the design requirements. In this study the design problem is formulated as helping an organization or institution transforming the enterprise logic from the industrial exchange logic towards the value co-creative logic of the networked society. Based on the insights from this chapter we now formulate the design requirements taking into account that we see the solution concept from the complexity perspective in essentially the design of an adaptive tension engine (and the management of the dynamics of dissipative structures).

In articulating the design requirements of the adaptive tension engine we make a distinction between

- functional requirements: what the engine is supposed to accomplish, the results to be realised;
- operational requirements: the conditions under which the engine (ideally) can function effectively;
- limiting conditions: the conditions that inhibit the realisation of the results.

Functional requirements

A well-designed adaptive tension engine should accomplish the emergence from the archetypical industrial exchange logic towards the more complex networked logic of value co-creation which in essence can be recognised from a different orientation concerning relationships (open system) and relevance (instead of myopic orientation on shareholder value only). The transformed organization should be able to function better under growing complexity.

1. **The co-creative enterprise logic** is typically recognisable by following characteristics:
   - 1.1 The setting of value creation: Value creation happens in an inter-departmental setting, a setting typically between entities. It is synchronic and interactive. Silo's are neglected or broken down and co-creation happens as well with internal and external stakeholders. The organization speaks with one 'voice' of relevance. The organization is perceived in the market as an 'attractive, dynamical partner.
   - 1.2 Roles and responsibilities are defined different from the earlier logic. In general they are defined more broadly:
     - 1.2.1 one thinks no longer in the dichotomy of customer-supplier but thinks in terms of participants;
     - 1.2.2 one thinks no longer only in terms of shareholder-value but has also a clear vision on stakeholder-value, on relevance for society;
     - 1.2.3 'participants' are willing to take many roles, are not just focused on having one role.
   - 1.3 Values are defined clearly and are worked upon consequently and corporation-wide. They are written down and used in a constructive way (HRM-cycle) (stabilisation dynamic);
   - 1.4 Interaction: There is a direct dialogue with stakeholders and there are clear procedures for those external stakeholders that are willing to co-create actively. Initiatives can come from all directions: external as well as internal stakeholders take the initiative for value creation in the network constellation;
   - 1.5 Evaluation: There is a more complex way of evaluating results: not just measurements and figures count but also qualitative measures make up the evaluation of interactions (no single metric). 'sustainable change' is recognisable on the macro-level as well as on the micro-level. An interesting measure suggested by Ramirez (1999) is the concept of 'Return on Customer base'.

2. **Management implications**
   - Process orientation (interaction orientation) instead of entity-orientation: a redefinition from the business conception 'from noun to verb'. Preferably this re-orientation is integrated in the logo as a prove of translating identity which is also consequently communicated to all stakeholders in a simple way;

- Organization: operational lines are short ('lowerarchies' instead of hierarchies);
- Management works inspiring with clear relevance: management happens with a style of orchestration, coordination and inspiration instead of a style of control. Thinking in terms of 'Return on customer base' complements the thinking of 'Return on investment' of people in the lead of the organization.

3. **Organizational Emergence**

If the design method of imagineering effectuates organizational emergence, the four dynamics of dissipative structures should be recognisable. These dynamics (except from recombination dynamics) are also recognisable in the prescriptions of MacIntosh and MacLean (2001) on' conditioned emergence'.

- Fluctuation dynamics: an 'adaptive tension' should be recognisable that keeps the organization innovating, experimenting and learning (the experience of far-from–equilibrium conditions);
- Re-combination dynamics: the emerging new order is in an important way the result of new combinations of existing resources realised in processes of self-organization;
- Positive Feedback dynamics: small actions are amplified by positive reactions and stimulating mechanism;
- Stabilization dynamics: the emerging new order is founded on a well established deep structure of values and principles that guides choices and strengthens the identity (clear and simple new order generating rules).

Operational requirements

The conditions that foster the effectiveness of the adaptive tension engine are essentially:

- *the integration in the corporate identity (for example as a tagline added to the logo) as to make the reframing evident (and incontestable) for as well internal as external stakeholders;*
- *an articulation in the narrative mode as to ignite and frame collective creativity in a simple and flexible way.*

Concerning the artefact

1. Coordination collectively: the transformation intention is verbally translated in a central mechanism of the identity which should also be known in the external world. Integration in the logo (using the logo to change the logic) or another consequent medium of external communication seems to be most effective;
2. Coordination narratively/artistically: preferably the generative process-orientation is narratively/artistically translated
   to inspire all stakeholders (to appeal to their imagination) (**heuristic** potential);
   to leave room for and sustain continuous innovation (**emerging** way of creating value);

to strengthen the whole with all new initiatives (**holistic** potential);
to allow for capturing dynamic complexity which otherwise can inhibit an organization (complexity potential/**simplifying** potential);
to function as a learning mechanism whiles it brings people from different departments and internal and external stakeholders around the table (**Learning** potential).

Concerning the general conditions in social systems (based on the conditions as formulated by Davis and Sumara, 2006).

1. The extent of internal diversity of the agents: bigger diversity augments the possibility for transformation;
2. the extent of interactions between agents and the 'richness' of the interactions;
3. The extent of decentralisation of control (which is something else than a laissez faire environment);
4. The extent of randomness, or sources of disruption, in the system and its environment;
5. The extent of coherence in the system which allows to keep collectively focussed;
6. Negative feedback loops to keep systems in check;
7. Positive feedback loops to amplify specific qualities or dynamics;
8. The scale of the system while complexity only emerges in systems of sufficient scale.

Limiting conditions

The conditions that limit the effectiveness of the adaptive tension engine are essentially are the conditions that inhibit collective creativity and transformative interactions, the conditions that keep people locked in their traditional departments and their traditional routines.

- Not taking the narrative/artist artefact central in the identity, in the internal and external communication;
- Not articulating and embracing core-values;
- Not knowledgeable about complexity science and thinking and as a consequence not seeing the importance of experimenting and interacting;
- Too tight control procedures and negative feedback loops that inhibit rich interactions;
- Perhaps the biggest limiting condition are incumbent leaders who have risen within the hierarchy based on command and control methods and that are not willing to change this command and control logic. In this regards it is encouraging according to Plesk (2001) is to note that at least in the UK the army is one of the pioneers in embracing new approaches based on complexity theory. "If the military can successfully replace the field general with the facilitator", there is good hope that other organizations can make a similar transition.

It will be evident that this list is only a tentative indication of possible limiting conditions and that this list is by no means exhaustive.

3.6 Conclusions

Conventional organization theory and complex organization theory approach change fundamentally different. While the first is oriented towards explaining why change happens, the second is oriented towards explaining why order emerges in the first place. While the first tends to be hung up on the simple dichotomy of episodic versus incremental change, the second opens the door for handling both dynamics at the same time.

Complexity thinking about change and innovation opens the door towards a rapid transition from one archetypical logic towards another more complex logic by evoking transformative interactions on the micro-level resulting in macro-level transformation of the collective. The complexity perspective allows for studying transformative change as a process of emergence from one dynamic state to the next one, being a more complex one. Enterprise logic transformation, the problem at stake in this study, is a typical process of transition from one archetypical deep structure towards another more complex one, and therefore is a problem that is extremely well suited to study organizational emergence using the complexity lens and to experiment with designing for organizational emergence.

Studying emergence in an organizational setting, complexity scholars argue to distinguish between reflexive and non-reflexive emergence as what can emerge changes as the fundamental characteristics of the agents change. As humans are not only able to reflect upon their actions but are also able to reframe their actions by imagining new connections for their acting, we introduce the concept of 'imaginative emergence' and suggest to see it as a specific case of reflexive emergence integrating the imagination and creativity of involved individual agents.

Introducing the concept of imaginative emergence opens the door for more creative self-organization processes in realising 'change' (core to as well emerging processes of business innovation as emerging processes of social innovation). It also opens the door for designing for organizational emergence as it offers the possibility to reframe actions of the collective deliberately. Transformative change is a matter of evoking transformative interactions and realising transformative interactions is a matter of reframing relationships reflectively. It is by changing the qualities of the conversation, including who talks to whom, when, where, why and about what, and in what way that change can be effectuated. In this study we suggest that we can design to evoke these transformative interactions in a strategically desired direction

in a sustainable way. Therefore we turn to the complexity concept of adaptive tension and the dynamics of dissipative structures.

The model of dissipative structures with its adaptive tension and its four dynamics based on the work of Prigogine in physics, has been validated several times in organizational research as a suitable model to conceptualize organizational evolution and transformation in terms of emergence. The research of Chiles et al. (2004) and Plowman et al. (2007a), besides of being award-winning research, became 'famous' in this regard as they are reflected upon in much of the organizational complexity research on emerging processes.

While this model of dissipative structures has also prescriptive value, MacIntosh and MacLean in 1999 used the model to build their model of 'conditioned emergence', a model originally conceived as a three stage model of conditioning, creating far-from-equilibrium conditions and managing feedback-processes, has been used and reflected upon by these scholars in different organizational situations. While the model of conditioned emergence lends itself well for action research, we intent with this study to build a design approach to effectuate organizational emergence. Therefore we build on the thinking of MacIntosh and MacLean on 'conditioned emergence' and add to this the insights of McKelvey (2004) on the importance of adaptive tension central in the model of dissipative structures to build our design method of imagineering.

The design method of imagineering consists in essence of the design of an 'adaptive tension engine' to ignite organizational creativity in a strategically wanted direction. We suggest that when this adaptive tension engine is designed effectively, it will evoke organizational emergence. If designed well the four dynamics of dissipative structures: fluctuation, recombination, positive feedback and stabilization will emerge spontaneously as in natural situations but we also suggest that in organizational settings we can and should deliberately make use of these processes as mechanisms we can use to steer the emerging process.

In next chapter we present the design approach of imagineering.

4 The design approach of imagineering

Abstract

In this chapter we present the design method of imagineering. We do this in two parts, the two sides of the same medal: First we explain how we think the method works by building and presenting a cognitive conceptual framework for understanding imagineering. We articulate the working mechanism of strategic Imagineering explicitly in a model we present as 'the stairway to heaven', a model that explains how collective creativity in a strategic envisioned direction is effectuated by the design of an artful lens and how macro-level and micro-level are linked with one another in a discursive process that can be managed inspired by the model of dissipative structures; Then (4.4) we turn to the other side of the medal to present the design method of imagineering we developed to strategically ignite and frame collective creativity in coping with complex problems such as enterprise logic transformation.

After presenting the design method we link the method to other streams of academic organizational thinking (4.5) and a broader perspective of management thinking as to see how these fields might be used to make operational the design method of imagineering. We finish the chapter with conclusions (4.6) concerning the design approach of imagineering.

"Words lead to deeds… They prepare the soul,
make it ready, and move it to tenderness".
– An epigram from Raymond Carver's (1992)
"Meditation on a Line from Saint Teresa in: William B. Gartner (1993), P.231.

"Words are windows for seeing what was earlier hidden or missing".
Gartner, 1993:238.

[…] the fundamental shift we are experiencing involves
empowering people at all levels to initiate innovative
solutions in an effort to improve processes."
Frank Barrett 1998:605.

[…] when systems are highly complex, individuals matter."
Bar-Yam, 2004:10.

4.1 Introduction

Imagineering has been developed as a design approach to strategically ignite and frame collective creativity as to realize organizational emergence in coping with complex problems such as enterprise logic transformation. It is a method whereby a narrative, a linguistic artifact as an 'artful lens', is designed and integrated in the identity (for example by adding the lens as a 'tagline' to the logo) to reframe thinking, dialoging and acting in a collective setting in a strategically envisioned direction. In chapter 6 the method will be tested on its effectiveness. As already mentioned in chapter 1, the method has its origin in the movie industry. In that industry the design of a 'high concept' is the linguistic foundation that ignites and frames effective improvisation by people responsible for emergent work processes. Ed Catmull (2008:4), a computer scientist and current president of Walt Disney Animation Studios and Pixar Animation Studios, explains the mechanism:

> *"People tend to think of creativity as a mysterious solo act […] However, in filmmaking and many other kinds of complex product development, creativity involves a large number of people from different disciplines working effectively together to solve a great many problems. The initial idea for the movie—what people in the movie business call "the high concept" (for example: Ratatouille, A French rat who aspires to be a chef)—is merely one step in a long, arduous process that takes four to five years. A movie contains literally tens of thousands of ideas. They're in the form of every sentence; in the performance of each line; in the design of characters, sets, and backgrounds; in the locations of the camera; in the colors, the lighting, and the pacing. The director and the other creative leaders of a production do not come up with all the ideas on their own; rather, every single member of the 200- to 250-person production group makes suggestions. […] The leaders sort through a mass of ideas to find the ones that fit into a coherent whole—that support the story—which is a very difficult task."*

It will be evident that even in the movie industry, the design of the high concept is not the whole story of making a successful movie. The essence of realizing effective emerging work processes lies with the collective creativity of the people involved in those processes and not in the magic of the high concept as such. Catmull (2008:6) explains: "If you give a good idea to a mediocre team, they'll screw it up. But if you give a mediocre idea to a great team, they'll make it work." What is essential in realizing emerging work processes is that an environment is constructed that engages people, nurtures trustful and respectful relationships and unleashes everyone's creativity in a coherent way. When everyone feels that they are part of something extraordinary, the community becomes a magnet for talented (creative) people. But the starting engine is essential.

In this study we suggest that this way of working, igniting and framing collective creativity by designing a 'high concept' (in complexity language: an 'adaptive tension engine') and managing it afterwards, has a broader applicability. We suggest that this 'movie-design-approach' can be used in a strategic way to cope with complex problems (in the emerging mode) in general. But before we dive into the theoretical part of this chapter, we first give a practical and simple illustration from our own experience (in working with the tourism industry at a destination) of what 'igniting and framing collective creativity strategically by design', looks like.

Box 4.1 Taglines in Tourism

It has become a fascinating marketing habit in tourism to use country slogans and city taglines to 'sell' destinations. On travel fairs they all come together, illustrating their traditional exchange logic: Aruba, One Happy Island; Hong Kong, Best Place, Best Taste; Egypt, Where it all begins; Japan, Fusion with Tradition; Maldives, …the sunny side of life; New Zealand, 100% pure; and many more. In good conventional marketing tradition, they try to sell 'the entity/the destination/the product' to 'consumers' by pointing to the unique selling proposition of the entity, the destination. That this way of working with a tagline in a connected society could (and should) be used as a dialogical instrument for reframing value creation to enable collective creative participation to generate at the same time better business and more satisfied guests/participants, is still an opportunity to discover for many destinations in the tourism industry.

Taglines are an interesting instrument to illustrate the phenomenon of framing and reframing in order to 'empower collective creativity strategically in value (co-)creation'. A tagline can keep collectives locked in traditional logic but it can also liberate them to flourish on creativity and innovation. Let's give an example.

One island in the Netherlands developed the tagline of 'The endless Island'. Soon after, the tourism board complained about the fact that there were only few entrepreneurial initiatives under this new 'umbrella'.
In a session with the entrepreneurs we questioned what entrepreneurial ideas popped up in their mind when instead of thinking about ***'the endless island',*** *they should think about* ***'the endless island experience'****?*
It was interesting to see, how after a moment of silence, entrepreneurs started to talk about the possibilities they saw fitting under this other 'umbrella': they came with ideas such as Endless Biking, Endless Boating, Endless Horse Riding, Endless Fishing, Endless Painting, The Endless Picnic, A Poetry Event, The night of Silence, Candle Light Night and many ideas more. From the one creative idea, came the other. The stakeholders involved in the session left the meeting convinced that they are, in fact, a very creative collective. They left energized and laughing about the endless opportunity horizon they discovered together that night.

Shifting the tagline from an orientation on selling an entity towards enabling strategically oriented collective creativity, is just the first step in optimizing value creation but it is an important one as it ignites and frames not only collective creativity but also collective enthusiasm and entrepreneurship. Adding that one word opened their imagination from which they were able to think and act creatively as a collective and next steps then (such as implementing the orientation from a HR-perspective and a communication-perspective (inclusive website and other instruments)) are needed to make value optimization in the network a sustainable process.

It will be evident that adding the word 'experience' won't do the trick in all situations but re-designing the business conception in the narrative mode to reflectively reframe an existing situation, can be an effective instrument In enabling collective creativity and this then can lead to the optimization of value creation.

What this example illustrates (as will do other examples further in this chapter such as the difference between speaking about 'home-less people' and home-seeking people') is the fact that reframing a complex situation linguistically, can liberate collective creativity in a remarkable way. It is a saying that words can create worlds but in this chapter we explain that we can also design words to create wanted worlds and that we can do this exercise in a strategic way as for example to transform the enterprise logic of a company that is locked into the industrial logic to make it a fun, creative and innovative organization able to thrive in the connected, networked society. At least, in this chapter we present the method and in chapter 6 we test the method on its effectiveness. It is evident that creativity cannot be planned but the example in the box shows that it can be influenced. The example also shows that, when ignited, collective creativity is endless and the process energizes involved stakeholders. This then seems to us the starting condition to make organizations more creative and innovative in coping with growing complexity in society. Of course, igniting and framing is only the first part of the story but without this first part, no change will happen as people will keep their routines.

Starting from the mechanism of triggering collective creativity in the movie-industry in effectuating emerging work processes by the design of a 'high concept', we ask ourselves in this chapter whether and how it is possible to design an 'artful lens' for triggering collective creativity in a strategically envisioned direction as to effectuate organizational emergence. Therefore we first focus on the construct of collective creativity (4.2) and how collective creativity is central in movie making processes and how it is designed for in that industry. Then we explain how this way of working with a high concept evolved into the design approach called imagineering in the creative industries and how the method became translated into a design approach to strategize under complexity.

The main part of this chapter consists of two parts, the two sides of the same medal: How we think the method works and how we design for it. First (4.3) we articulate how collective reframing and collective creativity works. Therefore we turn to some cognitive phenomena that are core to igniting and framing collective creativity and how these phenomena are worked with in the creative industries and elsewhere. We integrate these cognitive phenomena in a cognitive conceptual framework for understanding imagineering as strategic reframing of value creation. We articulate the working mechanism of strategic imagineering explicitly in a model we present as 'the stairway to heaven', a model that explains how collective creativity in a strategic envisioned direction is effectuated by the design of an artful lens and how macro-level and micro-level are linked with one another in a discursive process that can be managed inspired by the model of dissipative structures.

Then (4.4) we turn to the other side of the medal to present the design method of imagineering we developed to strategically ignite and frame collective creativity in coping with complex problems such as enterprise logic transformation. After presenting the design method we link the method to other streams of academic organizational thinking (4.5) and a broader perspective of management thinking as to see how these fields might be used to make operational the design method of imagineering. We finish the chapter with conclusions (4.6) concerning the design approach of imagineering.

4.2 Collective creativity

Creativity has been more extensively studied since the beginning of the 1990s as it became recognized as a critical means to create value in today's dynamically changing knowledge society (Amabile, 1988, George, 2007, Marion, 2012). It has been defined as "the generation or production of ideas that are both novel and useful" (George, 2007:441). So, outlandish, wild ideas can be creative but as long as they are not useful (having the potential to create value) they are not considered creative. On top, to be considered creative, the ideas must be novel. Effective problem solving as such, even while it is very useful, is not considered creative as long as the solutions are not new.

Most of the creativity research so far is entity-based. Creativity is considered to be a variable of an individual, a variable of the 'creative personality' that can even be measured as such (Csikzentmihalyi, 1999). Entity-based creativity research examines where creativity comes from, which contexts are conductive to creativity, how creativity occurs in teams and how to lead for creativity (George, 2007, Marion, 2012). According to George (2007) this might be the case while creativity is a particular fascination of psychologists.

Recently, however, interest is growing in what Hargadon and Bechky (2006) have called 'collective creativity' and what has been defined by George (2007: 494) as

> *"coming up with new ways to combine old and existing ideas, procedures, and processes to arrive at creative solutions to problems".*

Collective creativity is the creativity that emerges from the interactions of ideas of diverse people rather than from the mind of any given individual (Marion, 2012). Collective creativity is the creativity for which no one individual insight is by itself responsible for solving the problem.

The concept of collective creativity converges with the ideas of the systems approach to creativity. The Dictionary of creativity (Gorny, 2007) defines the systems approach to creativity as *a process at the intersection of individual, social and cultural factors (Amabile, 1983, 1996; Csikszentmihalyi, 1988, 1996, 1999; Simonton, 1988; Woodman and Schoenfield, 1989). It defines creativity as the result of "the interaction of a system composed of three elements: a culture that contains symbolic rules, a person who brings novelty into the symbolic domain, and a field of experts who recognize and validate the innovation" (Csikszentmihalyi, 1996:6).*

If we realize that creativity is a systemic –as opposed to individual process, then we are led to broaden our perspective. According to Csikzentmihalyi (1999) we then include systemic properties such as information and encouragement in our approach to stimulate creativity.

What is interesting in this turn into a cultural and systemic conception of creativity is that in this turn the significance of artifact-mediated communities, domains and practices are underlined (Miettinen, 2006). Seeing creativity as a systemic process or a collective process brings into play an artifact (or infrastructure) that enables and inspires such processes. It is obvious that the internet is a significant mediating infrastructure in this kind of processes and that this infrastructure is catalyzing collective creativity in new ways. But the internet is definitely not the only artifact that is able to orchestrate this kind of collective processes. It is our vision that a linguistic artifact is an important aspect in igniting and framing these collective processes complementary to other artifacts or infrastructure such as the internet. In the rest of this chapter we will speak about collective creativity instead of systemic creativity as this is the concept used by complexity scholars. Seen our stance in the previous chapters and the difficulties of conventional science to cope with the logic of discovery, the choice to continue with the complexity perspective is a rather evident one.

So far, the few studies that have focused on the phenomenon of collective creativity (from a conventional science perspective) have been oriented towards group

composition, conditions and team dynamics (George, 2007) or to categorizations of interactive behaviors (Hargadon and Bechky, 2006). Complexity theory, however, allows to go beyond this as it focuses on how interactive dynamics foster emergent phenomena like collective creativity. According to Lichtenstein and Plowman (2009) creativity, learning and adaptability are emergent phenomena and at present, the science of complexity is the only comprehensive theory available for studying systematically the dynamics of complex interactive networks. As such, complexity theory is the only comprehensive theory to study the emerging process of collective creativity.

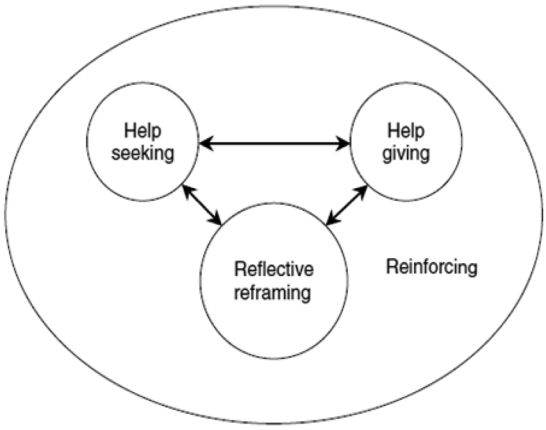
4.2.1 Complexity and creativity

"Complexity theory allows one to understand creativity as functions of interdependent interactions under conditions of conflicting constraints, heterogeneity, pressure, and uncertainty. Complexity describes large networks of people and ideas that are interacting and changing in a complex dance" (Marion, 2012:458). Unlike traditional approaches to creativity that focus on creativity as an individual attribute, complex approaches focus on the emergence, the interactions, and flow of ideas themselves. Collective creativity from the complexity perspective then is not so much about a collective mind as suggested by (the conventional oriented scientists) Hargadon and Bechky (2006) as it is about interactive, collective ideas (Marion, 2012).

According to Marion (2012) creativity is, "by definition, an outcome that cannot be predicted from preceding conditions, thus it cannot be planned. It can be anticipated, not in its specific form, but in the fact that it will very likely emerge from dynamic conditions". The challenge of evoking collective creativity then lies in enabling dynamic conditions. According to Hargadon and Bechky (2006) who studied 'momentary collective processes' empirically in companies as diverse as Accenture, Hewlett-Packard and IDEO, there is still little understanding of these moments of collective creativity and of the mechanisms that might trigger them. Analysis of their field data however, revealed four sets of interrelating activities that play a role in triggering moments of collective creativity: help seeking, help giving, reflective reframing, and reinforcing. Based on these four types of social interaction, they build a model of collective creativity (see box below).

Even while these four actions that precipitate collective creativity seem evident and easy, in many organizations these actions are constrained and undermined. While in many organizations creativity is seen as a characteristic of a capable individual, help seeking is often perceived as being unable to solve problems on one's own because a lack of competence and creativity. This is a social cost that few people are willing to take especially people with a higher occupational status (Lee, 2002). Seeing creativity as a characteristic of an individual keeps problem solvers away

from tapping into each other's past experiences and insights (Hargadon and Bechky, 2006). With growing complexity in society, the need to liberate collective creativity becomes more and more manifest. This asks for structural interventions in traditional and strongly hierarchically ordered organizations. Introducing the method of imagineering in coping with growing complexity, might be one of these interventions. Therefore, let's have a look at how collective creativity is fostered in the movie industry as in that industry fostering collective creativity is core to the business.



Help seeking describes activities that occur when an individual who either recognizes or is assigned a problematic situation actively seeks the assistance of others;

Help giving, conversely, represents the willing devotion of time and attention to assisting with the work of others;

Reflective reframing represents the mindful behaviors of all participants in an interaction, where each respectfully attends to and builds upon the comments and actions of others. And, reinforcing reflects those activities that subtly (and sometimes not so subtly) reinforce the organizational values that support individuals as they engage in help seeking, help giving, and reflective reframing;

Reinforcing happens as a direct consequence of engaging in these three activities (e.g., help giving as a response reinforces help seeking) as well as through more indirect actions within the organization (e.g., increased status or promotions for those who engage in these activities).

Figure 4.1 4 Interactions precipitating moments of collective creativity – *Hargadon and Bechky, 2006*

4.2.2 How collective creativity is fostered in the movie industry

Contrary to the companies and industries studied by Hargadon and Bechky (2006) in which there is still little understanding of the mechanism that might trigger col-

lective creativity, the movie industry as a whole is build and depends on the mechanism and competence to trigger collective creativity in a coherent way. The igniting and working mechanism here is called the 'high concept': the short narrative, easy to communicate which joins the aesthetic and the commercial potential (Wyatt, 2003) to bring forth a new (fascinating) perspective in society.

To be successful, this high concept, the new (fascinating) perspective in society as it is articulated in the narrative mode, should appeal intensively to the imagination of the creators of the movie in the first place and then also to the imagination of the bigger audience. The high concept is meant to open the imagination of involved stakeholders which means that it should show them an interesting and inspiring innovation horizon which they like to explore and interpret in their own actions, being it work processes or consumer processes such as acting to 'buy/see' the movie. The function of the 'high concept' is to ignite and frame collective creativity:

– igniting in the sense of being appealing as to start acting and
– framing in the sense that what is aimed for is a coherent story and therefore collective creativity should not go in all kind of directions but all creative ideas and actions should have synergetic effects to one another or should at least try to have synergetic effects.

Box 4.2 Example of 'high concept' of pixar

The fact that the high concept is articulated in the narrative mode, the mode of daily subjective language and artistic language, is of major importance in opening the imagination and effectuating collective creativity. An artful lens 'helps us to replace a passive intellectual mode of "talking about" what could be done with an active mode of doing what might work" (Zandee and Broekhuijsen, 2009:11). Contrary to rational language, poetic language is ambiguous. Poetic language is flexible, constructive and it invites for interpretation. An artful lens heightens the ability to be more sensitive and empathic, to see more and to see different (Barry and Meisiek, 2010). It helps us to notice and value the more subtle and surprising possibilities of acting.

As already mentioned the narrative mode has the properties of coherence and heuristic which the rational mode of thinking and acting misses. In using this mode as for example in poetry, in theatrical rehearsals or jazz improvisations, one can recognize ways of engagement that go beyond the dialogical possibilities of thinking and acting in the rational mode. Whitehead (1967:277) wrote about the necessity of imaginative thought as a source of renewal in civilization. "Without this imaginative force, staleness sets in and convention dominates". We can only create what we can imagine and when we imagine, we reach out with our brains and our feelings. Therefore we need evocative images and language as the future oriented basis for collective creativity.

It will be evident from the previous that a high concept is definitely not the whole story of a successful movie. Besides of the mechanism of the high concept that ignites and frames, there are also the general conditions under which collective creativity can happen more easily and effective and it is interesting to see how these principles are aligned with the principles that foster complex processes (as we discussed in chapter 3). Catmull (2008:1) suggest following general principles:

- Empower your creatives: Give them control over every stage of idea development;
- Create a peer culture: Encourage people throughout the company to help each other produce their best work;
- Free up communication: Give everyone the freedom to communicate with anyone else without having to ask permission;
- Craft a learning environment: reinforce the fact that everyone is learning all the time and that it is fun to learn together;
- Get more out of post-mortems: Even while most people prefer to talk about what went well instead of talking about what went wrong and even while most people like to move on after investing intensive time on a project, it is important to structure post-mortems as to stimulate discussion.

It is with this background of working with high concepts in the movie industry that the management of the Disney Corporation entered Alcoa, Aluminum Company America, at the end of the forties. When planning their attraction business they stumbled also into the word 'imagineering'. At that time Alcoa had a corporate project with this name that invited all employees to use their imagination in imagining new product-market combinations for the future direction of the company as they needed another innovation horizon (besides of constructing war materials) after the second world war. Besides of buying the aluminum for their attraction parks, Disney decided to call their central creation department, the imagineering department, the department where all collective creation (movie, attraction or another creation) starts from the conceptualization of a high concept. While, doing this, Disney was already broadening the applicability of the method of working with a high concept to the whole of the creative industries, we suggest in this study that the applicability goes even further in the connected, complex and creative society where linear solutions increasingly fall short.

4.2.3 Imagineering as strategically igniting and framing collective creativity

What we like to call 'strategic imagineering', differs from 'regular' imagineering in the creative industries in that it centers around the design of a high concept/artful lens with a strategic direction in mind. This is not the case in 'regular' imagineering. Even while the movie industry works from the design of a 'high concept', in that industry one has not necessarily an idea about even the direction of the end result as shows the last sentence of the opening quote of this chapter (from Catmull (2008):

> The whole process of collective creativity takes four or five years. And then: *"The leaders sort through a mass of ideas to find the ones that fit into a coherent whole—that support the story—which is a very difficult task. It's like an archeological dig where you don't know what you're looking for or whether you will even find anything. The process is downright scary. […] At the outset of making these movies, we simply didn't know if they would work. However, since we're supposed to offer something that isn't obvious, we bought into somebody's initial vision and took a chance."*

The difference between 'regular' imagineering and 'strategic' imagineering is as the difference between art and design: art is "unspecified experimental modeling" (Sless in Banathy, 1996:17) while design happens with the end in mind. Imagineering then does not happen with the end in mind as this is not possible in facing complex problems, but it happens with a clear direction in mind. In our study here: it happens with the enterprise logic of value co-creation in mind. As already mentioned: design is solution-oriented, imagineering is evolution-oriented. But art, design and imagineering have something in common, namely that the three create something

that did not exist before. The crucial difference between the three is in the realm of accountability: "The designer is accountable in terms of specified objectives." The strategic imagineer is accountable in terms of processes leading to an envisioned sustainable dynamic state. The artist's accountability, then, "is carried or smashed by the tide and waves of posterity" (Sless in Banathy, 1996:17).

Making a movie is like making a piece of art based on collective creativity starting from the initial imagination of the high concept. Orchestrating a social process such as business innovation or social innovation or social change such as enterprise logic transformation (resulting in a more wanted sustainable dynamic state) asks for collective creativity in an envisioned direction and we suggest in this study that an artful lens can be designed to effectuate this collective process. Realizing that the tagline is definitely not the whole story of enterprise logic transformation, we illustrate the essence in the box below (the case of Antwerp is central in chp. 6).

Box 4.3 Former, official and new 'promotional' logo of the city of Antwerp

Former, official logo	New, 'promotional' logo with tagline: The city is from everybody
Stad Antwerpen	't Stad is van iedereen.

The reason why we suggest that a high concept and an artful lens (effectively designed) can ignite collective creativity lies in the cognitive phenomenon of the imagination. Imagination is the human ability to see things other as they are until now. Dunbar (2006), an evolutionary psychologist, identifies imagination as the distinctive characteristic of humans, 'the uniquely advanced cognitive capacities that allow us to create virtual realities in the mind in a way that no other species can come close to' (Dunbar, 2006). As a generative tool imagination is the source of creative activity (Vygotsky in Kim, 2006) and innovation. Appealing to the imagination leads to associations in individuals that depend on their experiential background and thus differ from person to person and from culture to culture. It opens the rich archive of material of the collective to tap into as to come up with all kind of creative interpretations and applications in coping with complex situations.

Liljedahl (2009:3) argues that within the imagination, cognition and emotion are inseparable and complementary domains: 'When we imagine we reach out, not only with our thoughts but also with our emotions. We feel our way forward into new realities, and once there, we navigate the possibilities with our feelings. It is these emotions (that are based on our values (added by the author)) that engage us, that inspire us to imagine and to keep imagining. It is the emotional engagement that sustains the cognitive engagement. Without these the imagination would be not much more than novel musings'. It is this strong link between imagination and emotions that immerses people in realizing (sustainable) behavioral change. On top, according to Seligman (2002) people experience things as meaningful when they are able to use their signature strengths and virtues in the service of something much larger than themselves. As such, imagination is recognized to be the unique property of human systems and, according to Cilliers (2005) and Sardar (2010) the most important ingredient for coping with post-normal times.

Imagineering then is a linguistic blend of imagination and engineering. It is a portmanteau word: a combination of two (or more) words or morphemes, and their definitions, into one new word combining both sounds and meanings as to frame and to 'say' a new phenomenon, in this case the phenomenon of empowering value creation by using or designing an image that appeals to the imagination of the individual agents in a collective. The image (or artifact) enables the individual agents to see a new innovation horizon for the collective they were not able to see before and, it invites and enables them to act creatively in the envisioned direction in interaction with one another (as to change existing routines).

In this study we define imagineering as

> *'designing a narrative to strategically ignite and frame collective creativity'.*

Imagineering is a complexity inspired design approach to effectuate emerging self-organization by enabling collective creativity in a strategically envisioned direction. Typical for strategic imagineering is the fact that in response to imperfect knowledge and uncertainty, an image is used (Ratcliffe, 2006a, 2006b, 2011) to enable the creation of new connections where none existed before. Those new connections help people to envision new possible action and it is the linguistic articulation of that image that helps them to reflect collectively and creatively upon that new horizon. As such, imagineering can be seen as a way of strategizing under complexity.

4.3 A cognitive conceptual framework for understanding imagineering

Organizational emergence, the coming-into-being of a new, sustainable dynamic state that allows an organization to function in a more complex environment, is a matter of engaging people creatively and collectively in transformative interactions. This study suggests that the design of a linguistic element, an artful lens, can ignite and frame this emerging process by reframing an existing mental model in the mind of an individual agent of the collective: people can only create what they can imagine. So, to say that collective creativity is only about interactions would be incorrect (Marion, 2012) as the individual mind with his or her dilemma's, is an important factor in the transformative interactions that are needed to realize organizational emergence.

On top, according to Lichtenstein (2011:487) the fact that 'most non-computational applications do not reveal the underlying processes and dynamics of self-organization' is one of the major problems that block further progress applying complexity in management (McKelvey, Lichtenstein and Adriani, 2012:105-106). This then is the focus of the first half of this chapter: revealing the processes underlying the processes and dynamics of self-organization and integrating them in a cognitive conceptual framework for understanding imagineering. Our central question: how does reflective reframing happens at the individual level?

In classical science with its deterministic, reductionist and disjunction principles (Morin, 2008), imagination is neglected partly while it is hard to measure and also while it is seen as not so important from a positivist perspective (Efland, 2003). Based on its mathematical general equilibrium models, in classical science it is assumed that everything is connected to everything else in the most optimal way (Potts, 2000) and that all human minds as 'black boxes' are the same. In the highly unlikely case of cognition having to take place, cognitive abilities are treated as perfect and unbounded (Rizzello, 1999 in Wentzel, 2006:20). In short: in mathematical general equilibrium models there is no room for any kind of thinking that is inconsistent with mathematical reasoning, there is no room for any kind of imaginative and entrepreneurial future thinking. According to Wentzel (2006) it is clear that a theory of imagineering has to be developed outside the limiting assumptions of the general equilibrium approach. In this study we suggest that complexity science offers a promising perspective to develop such a theory. Solving problems in society while evolving essentially requires imagining what to achieve and how to achieve it (Loasby, 1976, 1991). It is the continuous interpretation of the individual agents and their interactions in the collective that generates new order.

In this section the cognitive phenomena that are essential in understanding the working of the approach (mental models, the process of encoding and decoding, the role of language and the narrative mode in reframing mental models) are first discussed separately and then integrated into a cognitive conceptual framework. Finally the working mechanism is articulated in a model called 'the stairway to heaven': a model that explains how collective creativity in a strategic envisioned direction is a matter of iteration between the bigger picture (the strategic envisioned direction) and the micro-actions of individual agents in the collective.

4.3.1 Mental models

Mental models are 'the internal representations that individual cognitive systems create to interpret the environment' (Denzau and North, 1994:4). According to the linguists Lakoff and Johnson (1980), mental models are built in essence on image schemata that have an experiential origin, a vision with which they counter the traditional Western mind-body dualism of Descartes. It are image schemata derived from bodily and perceptual experience that provide the foundation for such processes as, abstract reason, metaphor, narrative as components of the imaginative in cognition. Johnson (1987) exemplifies this for example with the image schema of 'balance' as giving rise to a structure that applies to many instances of balanced phenomena in life. Initially, 'balance' acquires meaning through physical experiences as we learn to maintain equilibrium against gravitational forces as a baby. We learn to 'balance' in an activity we learn with our body, learning to stand and walk. Once these schemata established, they are potentially available for metaphorical exploration into for example a balanced personality, a balanced equation in mathematics and the balance of justice in the workings of the legal system (Efland, 2003).

Lakoff and Johnson (1980) claim further that it is the existence of these image schematic structures that makes the foundation for our rational thinking. It is through the extension of these structures by 'metaphoric projection' that higher order, rational thinking emerges. "The existence of these structures of imagination not only suggests that imagination is cognitive but it is likely the foundation of cognition" (Efland, 2003:39-40). For Lakoff (1987:276) a metaphor must have three parts: a source domain, a target domain and a source to target mapping. Metaphoric projection then is the means through which abstract thought arises. It is by means of the pervasive structuring activity of the imagination by which we achieve coherent, patterned, and unified representations. As such "imagination is absolutely essential to rationality, that is, to our rational capacity to find significant connections" (Johnson, 1987:168). This means also that individuals with common cultural backgrounds and experiences will share reasonably convergent mental models but that no two individuals have exactly the same mental model as they have different experiences.

In essence, mental models would tend to diverge if there were not ongoing communication with other individuals with a similar cultural background. Cultural heritage and cultural learning constitute a means for the intergenerational transfer of unifying perceptions. With these mental models (such as for example the model about 'how to do business') we interpret the data provided by the world. Models that we share inter-subjectively make it easier to communicate and to learn (shared mental models). Ideologies then are "the shared framework of mental models that groups of individuals possess that provides both an interpretation of the environment and a prescription as to how that environment should be structured". Institutions are the external (to the mind) mechanisms, the rules of the game, individuals create to structure and order the environment especially the interpersonal relationships. The mental models that the mind creates and the ideologies and institutions that individuals create are both essential to the way we continuously structure our environment and our interactions with it.

It is the understanding of these models and how they evolve which will make it possible to replace the 'black box' of the 'rationality assumption' (Denzau and North, 1994) with insights of the 'imagination assumption' to generate new order on the level of the individual agent. It is this understanding which is key to developing theory that will expand our understanding of societal and economic evolution. To articulate it in the words of Herbert Simon: 'Economics will progress as we deepen our understanding of human thought processes' (Rizzello, 1999:79).

4.3.2 The processes of encoding and decoding

Developing a mental model happens in essence via a communication process that is noisy and imperfect, a process of encoding and decoding as illustrated in the box below.

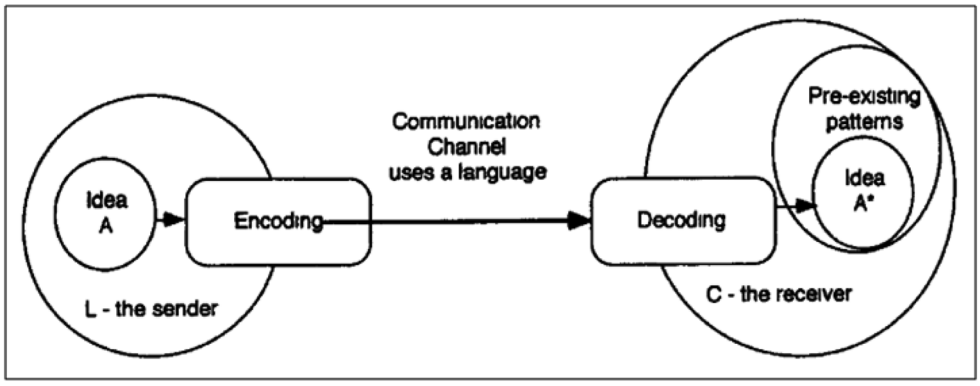


Figure 4.2 Mental models in a simple model of communication – ***Denzau and North, 1994:19***

Denzau and North (1994:19) explain this process as follows: "The sender, L on the left, has an idea, A, that is a pattern of activation in her neural cells. To communicate this idea to C, the receiver on the right, L must encode this idea into a message in a language that can be used on the communications channel. Once this message is received by C, C must first decode the message so that it can affect C's neural patterns. But there are already pre-existing patterns activated in C's mind, and these patterns affect the effect the message has on C's neural patterns. The problems lie then in the encoding and decoding processes, and the pre-existing patterns that are in the mind of the receiver. All cause that the idea A* that the receiver gets in his mind to be different from that in the sender's mind" even while the sender has most often the intention to articulate his or her message as 'exactly' as possible. Below we will see that it is exactly on this point that we make a switch as imagineers by deliberately using the narrative mode to evoke different interpretations making sure to encode only a clear (strategic) direction.

The evolution of our mental models typically happens by reflection on the feedback we get from new experiences. This feedback may strengthen and confirm our initial categories and models or it may lead to modifications: in short, learning (Denzau and North, 1994). Learning can lead to minor modifications of the existing mental models but it can also lead to changing the structure of the existing models and 'it is at this juncture in the learning process that the learning of humans diverges from that of other animals and certainly diverges from computer analogy that dominated so much of early studies in artificial intelligence' (Denzau and North, 1994:14).

The mind appears to order and reorder the mental models in successively more abstract form so that they become available to process information outside its special purpose origins' (Denzau and North, 1994:14), a process which is called 'representational re-description' (Clark and Karmiloff-Smith in Denzau and North, 1994): the capacity to generalize, to reason from the particular to the general in rewriting mental models. At the individual level, the representational re-description is a modification which goes beyond the 'normal learning' and the normal learning period (in which the evolving 'climate of opinion' is said to be a crucial feature) is relative long to the often sudden shifts in viewpoint that accompany representational re-descriptions. The resulting dynamics are those of punctuated equilibrium (Eldredge and Gould, 1972 in Denzau and North, 1994): long periods of slow, gradual change punctuated by relatively short periods of dramatic changes, the periods of representational re-description.

Manipulating the process of encoding and decoding

But the process of accommodation and change in shared mental models, this process of encoding and decoding, does not always progress smoothly or easily. It can be manipulated, which can be positive or negative, conscious or unconscious. For

example, sometimes a group in society such as ideologists or fundamentalists, try to resist change and this can generate a crisis, a gap between the general climate of opinion and the 'pure' ideology as for example in Castro's Cuba today. According to Denzau and North (1994) a punctuation, a short, relative rapid change, can be generated the moment the ideology finally changes (if it does). The representational re-description which was already in preparation and waiting for a long time to be effectuated, can be realized at that very moment, a dynamic of punctuated equilibrium.

A totally different situation of conscious manipulation can be seen in the intended transition from plan to market economy in the countries of the Soviet bloc at the end of previous century (Meyer, 2001). It was an attempt, not to resist change of the majority by a minority, but to realize/manipulate evolutionary change of the majority. The attempt, as we know by now, failed.

The deliberate manipulation in this context is, of course, a very complex situation as the essence of this economic transition 'from plan to market' is the replacement of one set of institutions governing economic activity by a different one. But in essence it is also about individual agents in a collective that have to replace existing mental models and routines by new models and routines, a difficult but interesting experiment to explain our thinking about the process of encoding and decoding of individuals in a collective setting as meant in the design approach of imagineering. Let us explain our thinking, building on the analysis of the failed situation in the Soviet bloc as presented by Meyer (2000 and 2001).

Meyer (2000) argues that enterprise transformation is a radical change of the inner logic: not only of the production process but also of the nature of the external relations. Scholars agree on the fact that enterprise transformation is in the first place a coordination problem, a matter of encoding of the individual agents in a collective. Coordination problems are recognized as a major cause of market failure during transition. What is needed is a mechanism (mental model) 'that induces agents to choose routines that provide the mutually best outcome' in a strategic desired direction. Meyer argues that leaders should change the structure of the game but above all they should take care of the development of common knowledge on which new routines shall be pursued in the future.

The coordination mechanism has to do with the strategic direction but also with the implementation. A move to the higher level equilibrium will only happen if the individual agents believe that also the other agents will play the new routines. Without common knowledge and common timing of the switch, the higher level will never be reached. Everybody has to know that a different game is played and everybody has to know the rules of that game, has to see the new game will make him better off and has to know what moment the switch will be made to that new game. Even

while Meyer argues that this coordination problem is in the end a leadership problem, we agree with this fact that a leader can play a pivotal role in moving the system to a more complex level of functioning but we dare to question whether a leader is sufficient or even whether a leader is a necessity to do so. In our opinion a dialogical mechanism, integrated in the identity of the system, can have at least the same effects as a leader can have.

In essence, according to Meyer (2000, 2001) it was the lack of a shift in mental models (including routines, knowledge, procedures etc.) at the individual and organizational level that provoked market failure in the Soviet bloc. Individuals had to act different from day 1 on markets that did not yet exist; they lacked the (often tacit) knowledge, the mental frame (on a micro-level) on how to use the market mechanism and in all interactions in the market they orchestrated, they were confronted with the 'old' mental models. So, even for individuals willing to change the system, it was a challenge to be able to redirect their actions and interactions (Meyer, 2001). This shows that the individual agents can and will only change when it is clear that the collective is changing, i.e. when the encoding is effectively manipulated. In this study we argue that language is an essential mechanism in doing so.

In our thinking: a designed artifact that evokes the intended change in the micro-level interactions and that makes a change in the conventional dialogues possible (encoding), is an important instrument in realizing (by coordinating) sustainable change. In the Soviet situation: Dialogical 'icons' such as 'Gorbatsjov' and 'Perestroika', even while they were strong communicational elements in this context of encoding, did not help much as images to restructure the interactions on a micro-level (as they don't give the individual agent a clear clue of how to change the own behavior in the collective setting). As such they don't really help as an instrument to generate new order. In the divers micro-situations there is the potential to see a different future but individual agents have no idea how to change behavior (collectively) in order to make that new horizon come true. The existing communicational elements do help in stimulating openness and transparency but they do not empower people in action. The reframing was not successful because in the encoding something was missing. A 'simple rule' that articulated how to make the predominantly relational change happen, was missing. As a consequence, no collective change emerged.

It is evident that changing mental models is not an easy thing to do and we definitely still have to learn this game if we would like to orchestrate social or societal change. But reflecting on this kind of ambitious experiments as the one in the Soviet bloc is an essential thing to do in this context while this kind of experiments can only be done in reality, not in the save and sure context of a laboratory.

Even while we don't think that organizations and whole systems reincarnate themselves overnight but rather evolve over time, we are convinced about the importance of language as a coordinating mechanism. Even while this experiment failed, it is an extreme situation that makes clear that a good understanding of the dynamics of imagineering might be very helpful in situations where the objective is the generation of new order in a sustainable way, something which is barely needed in many situations in society. The analysis of business in an unusual context such as economies in transition, provides an interesting laboratory to explore aspects that can contribute to the discourse on generating new order in general. In the following paragraphs we will focus on the process of encoding/reframing and on the role of language in this process.

4.3.3 Reframing by language

The conventional assumption of 'human rationality' requires that the preference between options should not reverse with changes of frame, changes of encoding. Tversky and Kahneman (1981) however, have theorized convincingly that different framings of choice problems cause indeed significant shifts in preference. 'The relative attractiveness of options varies when the same decision problem is framed in different ways' (Tversky and Kahneman, 1981:457). Framing makes a difference. As people are normally unaware of the effect that framing has on their actions and they most probably wish their preferences are independent of frame (as no one likes it to be 'manipulated' in its decisions), it is obvious that framing linguistically is an ethically significant act. It becomes obvious that all decoding depends on encoding and that encoding can never be objective or neutral as it will always depend on mental models that are necessarily personal. "Linguistic devices such as particular images, metaphors, stories and narratives carry the structures that enable, or dupe others in specific ways" (Fineman, 2006:282).

In practice it is easy to see that different framing of problems can lead to different actions and interventions. The examples in the box below illustrate in a popular way that different frames create a different 'opportunity tension' and that an opportunity tension can be formulated in a positive way (in contrast to the negative way of formulating at GE and 3M which we pointed at in previous chapter). In case the 'encoder' is depending on the spontaneous participation of involved stakeholders to solve the problem, framing might be crucial in making the difference.

Box 4.4 Examples of reframing situations by language

– *Home-less people or home-seeking people*
In the context of the financial crisis it might be effective to reframe (or complement) the concept of 'Home-less people' with the image of 'Home-seeking people' as this image will mobilize involved stakeholders and networks in a more constructive way.

– *A blight or a folk community*
A classic example of Donald Schon (1978) on the principle of 'Generative Metaphor' is the following one. In social housing it makes a difference whether one refers to an urban neighbourhood as being 'a blight' or as being 'a folk community'. Both these images will lead to other design interventions. Labelling the neighbourhood as a folk community results from a perspective of appreciation of the existing social support networks which might result in designs for strengthening the existing social infrastructure. Labelling that same neighbourhood as a blight, on the contrary, might result into cutting out the blight and bringing in a fresh form of life.

– *'Don't drink when you drive' or 'be BOB for tonight'*
In the context of safe driving one can wonder what is more effective in changing destructive behaviour: the sanctioning, negative approach or the positive approach that appeals to the imagination of the individual agents to be the care-taker of their friends which offers them a 'socially accepted role' to avoid drinking.

– *The 'Not-invented-here Award'*
In trying to change an organizational culture in the direction of being interested in one an others discoveries, it has been proven more effective to evoke this behavior by reframing the individual mind in a collective setting by a construct such as 'the 'Not-invented-here Award' than to implement a change plan that tries to force ICT-people to be interested in each other's work (see example in the introduction chapter).

To transcend the current paradigm, language is seen as an important instrument in encoding with imagination, even in the world of 'material design'. When the encoding is done with imagination, connections are created that did not previously exist in the realm of experience. In the world of material design this kind of languaging fits into the conceptual framework of 'meta-design'. It is a conceptual framework that aims at 'defining and creating social and technical infrastructures in which new forms of collaborative design can take place. It extends the traditional notion of system design beyond the original development of a system to include a co-adaptive process between users and a system, in which the users become co-developers or co-designers' (Fischer and Giaccardi, 2004). It makes a distinction between design times, the time when a system is developed, and uses time, the time when a system is used, while meta-design is grounded in the basic assumption that future uses

and problems cannot be completely anticipated at design time. As such metadesign is a more self-reflexive, comprehensive and integrated mode of design (Wood, 2011). Wood (2013) illustrates the difference with the design of an 'environmentally sustainable car'.

Box 4.5 Example of meta-design

"The design of a more 'environmentally sustainable' car is a good example. Despite its obvious environmental benefits at the local, short-term level, it may, nevertheless, attract more drivers away from public, or human-powered transport systems and back onto the roads (Illich, 1975, p. 18). Where the classical Aristotelian designer would have designed mainly at the level of the product or service, the metadesigner would seek to regulate its affordances and impact as they unfold over time. Managing this process ethically calls for a comprehensive, long-term approach that is beyond the capacity of any one individual, however gifted and well informed she, or he, may be. We have, therefore, taken license to define metadesigning as a loose superset of any, or all, existing design methods, plus other relevant expertise from elsewhere".

Also in this world of 'material design' Wood (2011) argues that 'without the ability to 're-language' new thoughts we will fail to transcend the current paradigm' as re-languaging is a way to change attitudes, relationships and habits of behaviour. According to Wood (2011) 'applying thought processes within a ready-made epistemological framework discourages people from sensory immersion in the task at hand. Hence, bureaucratic language may dumb-down, displace, or divert the desired outcome of the action'. Re-languaging reminds participants of the original purpose. As such, metadesign is re-languaging design in coping with growing complexity.

In the world of designing for social systems, re-languaging to reframe is at least as important as in the world of 'material design'. The power of creating new terms in human systems has, for example, been demonstrated convincingly in 1947 by Raphael Lemkin by inventing the word 'genocide'. After years of failed attempts to draw the world's attention to a certain category of military aggression, it was the invention of this new word which convinced the United Nations to institute appropriate legislation.

According to Wood (2011, 2008) using or creating auspicious terms or questions can lead to auspicious reasoning, an important consequence while the logic of nature is non-linear and the rational logic tends to be linear. Seen from a complexity perspective, organizations are systems of interpretation and reality construction. New words may inspire new understandings and dialogues which might result in new beliefs and new actions and new habits which makes Wood (2013) wonder: "If language

plays such an important role in shaping, and negotiating perceived 'reality', it may be surprising that the role of writing and speaking has been so undervalued within the act of designing." In nature, when a given species cannot perceive and 're-language' new, emerging conditions that suits its habitat, it may die (Maturana and Varela, 1980, xvi).

In organization science, Lissack and Roos (1997) have pointed to the importance of languaging to reframe complex situations as in human settings words can carry multiple meanings and as such they can open up new possibility spaces. 'Meanings can be dealt with as medium for action and not 'managed' as if concrete objects' (Lissack and Roos, 1997:1). They argue that it is in the emergent nature of languaging that change manifests itself and that as a consequence strategic management should pay much more attention to language in organizations especially in times of growing complexity.

With growing uncertainty and complexity people are searching more than ever for meaning and they are less willing/daring to act. This context opens the door for leadership through languaging: it is the role of managers to shape and create contexts in which appropriate forms of self-organization can occur. Shared meaning is essential for such a context as it can resolve uncertainty and restore cohesion which is necessary for further activity. A great leader is one who both makes sense of things and is able to put that sense into language meaningful to large numbers of people (Pondy, 1976). This is exactly in line with the definition of design of Krippendorff (2006): Designers are meaning makers. In complex times, managers should be meaning makers (Conger, 1991). But what then is the difference between languaging and imagineering?

4.3.4 Imagineering: Reframing in the narrative mode

Even while metaphors that are outside our conventional conceptual scheme are already imaginative and creative, offering a new understanding of our experience (Lakoff and Johnson, 2011) it is still an understanding by analogy. In imagineering we make deliberately use of the narrative mode of thought and (re-)languaging because of its intuitive, meaningful and paradoxical style in a broad way. Gartner (2007) speaks about the existence of an 'entrepreneurial narrative' in this context.

Instead of intending to be as clear as possible in the 'encoding' phase, in imagineering we decide to be deliberately 'vague' in the encoding phase as the intention is to stimulate the imagination (and the engagement) of the receiver in the decoding phase. This sometimes results in the design of new words or new word-combinations. In imagineering we aim to be clear in the intended direction and at the same time aim deliberately to stimulate creative interpretations in the envisioned

direction. Therefore we make use of imaginative language in the broadest sense possible (not just using existing metaphors) in the encoding phase as this brings with it a kind of reverberation down through the network of entailments that awakens and connects our memories of past experiences and serves as a possible guide for future ones. Encoding with imagination creates new connections that did not previously exist in the realm of experience which makes it possible in the decoding phase to connect the unconnected along a fairly predetermined and predictable path by deductive thinking only.

As already explained in chapter 1, the narrative mode has associative power and it has close links to the emotions (see for the difference the table in chapter 1). We now explain and illustrate how some words and texts have imaginative, associative power and others don't. Appealing to the imagination is seen as a crucial element in realising emerging change. Let's have a closer look at the concept of imagination as a specific way of re-framing and encoding in human settings.

Imagination and fancy

To explain the concept of imagination, the Webster's New Dictionary of Synonyms, compares the concept with the concept of fancy. 'Imagination can be understood as an ability to conceive of something, seen only fragmentarily or superficially, as a complete, perfected, and integral whole'. 'Fancy refers to 'the power of inventing the novel and unreal by recombining the elements found in reality'. As Weick (2006:448) puts it: 'Imagination is a shaping or modifying power. Fancy is an aggregative and associative power' (Webster's New Dictionary of Synonyms, 1984, p. 415). Imagination has heuristic and holistic properties which fancy has not.

To illustrate the former: The constructs of the introducing examples of this chapter: the construct of 'The endless Island' and the construct of 'The endless island experience' are both possible constructs of which the second has more imaginative power as it touches directly upon the experiential world of the receiver. Constructs such as 'Peace Parks' in Africa allow for interpretation in many directions and situations as it associates in all kind of directions and contexts, as well on a micro-tactical level as on a strategic level or international network level. In the case of 'Peace Parks', the concept generates peaceful behaviour of individual agents, from the ranger in the park to the diplomat talking in a global meeting, it is possible to interpret the concept of Peace Parks in the personal discourse and in the personal actions and interactions. It is possible to change the own behaviour because of, at the same time, the flexibility and the coherence of the construct.

To illustrate the latter: Pegasus is a fancy construct as it is a combination of horse and wings and doesn't evoke (or even allows) another meaning or association in whatever direction. The construct misses the flexibility and the heuristic power of imaginative constructs. Many creative constructs are fancy constructs and not

imaginative constructs. They don't open the imagination of other stakeholders to come up with their own interpretation (their own deductive reasoning) to, eventually, realise synergetic efforts with the broader organization. Fancy concepts have limited associative power. They have a limited 'flexibility'. It is not possible to give an interpretation which is different in every context and as a consequence, the construct offers no behavioural opportunities.

In the movie industries the narrative mode is core to the business: it is by developing a 'high concept' (see chapter 1), a short narrative which 'says it all', that collective creative business can emerge or will not emerge in case the short narrative doesn't meet the magic to appeal to the imagination of the employees and the masses. In the creative industries designing in the narrative mode is used as an end in itself. The objective there is to make people reflect and project. Outside of the creative industries we developed imagineering as a design method to reframe complex situations reflectively to ignite collective creativity in a more desired direction. Such as making a city more creative and open minded or to make a retail-chain more connected with all kind of stakeholders in the value creating network, two examples that will become clear in chapter 6 when we discuss our central cases.

Imagination and emotion
With growing uncertainty in society it becomes evident that designing in the narrative mode has an important potential outside the creative industries, not as an end in itself but it has a potential to help solve problems in an indirect way because of its heuristic and holistic properties: it shows direction but it leaves room for individual interpretation and it even invites for making interpretation as it not only engages people rationally but also emotionally. The narrative mode orients them not as much towards procedures and routines as to substance and conceptions (Tsoukas and Hatch, 2001).

Solving problems by imagination and by design
As a consequence: solving problems by design and by imagination don't leads to the same results. Liljedahl (2009:1) articulates the difference between solving problems by design and by imagination as follows: "In a general sense, *design* is defined as the algorithmic and deductive approach to solving a problem. The process begins with a clearly defined goal or objective from which point there is a great reliance on relevant past experience, referred to as repertoire, to produce possible options that will lead towards a solution of the problem. These options are then examined through a process of conscious evaluations to determine their suitability for advancing the problem towards the final goal. In very simple terms, problem solving by design is the process of deducing the solution from that which is already known."

This is very similar to the imagination. In both cases, possible solutions are generated by reaching out from a repertoire of past experiences but there are three main differences, however (Liljedahl, 2009). Contrary to the case of design, in the case of imagination,

– the experience need not be real; it need only be imagined. Thus, the repertoire of past experienced is expanded to include all things imagined;
– possible solutions are not hampered by the need to be reasonable, they may be unreasonable, unusual, or implausible;
– plausibility is evaluated at the unconscious level. As such, the imagination is capable of evaluating plausibility much faster than its more reasonable and ponderous counterpart.

Together, these three distinctions increase the likelihood that a solution that is unusual, even seemingly implausible, may be found and may be experimented with which, again, is desirable in cases of uncertainty.

Imagination in this context is about the capability to build on the intuition, the emotions, values, experiences and knowledge to envision new future possibilities. Imagineering then is the process to use language in such a way that it opens the imagination of the individual agents in a collective in a direction envisioned and encoded by the sender. Successful imagineering usually involves the resolution of a contradiction which can't be solved by design.

In the two following paragraphs we integrate the discussed cognitive phenomena in a cognitive framework of how imagineering works basically in the creative industries and how it works in 'strategic' imagineering.

4.3.5 A cognitive conceptual framework for understanding imagineering in the creative industries

An interesting way to present the basic process of imagineering (the way it happens for example in the creative industries) is the way Wentzel (2006) does it, using the model articulated by Einstein to explain how scientific discoveries happen. Einstein outlined the model in a letter written in 1952 (see model in the box below (Wentzel, 2006:28)). It explained most probably for the first time that successful change or evolution does not involve deductive reasoning, but a leap of conjecture.

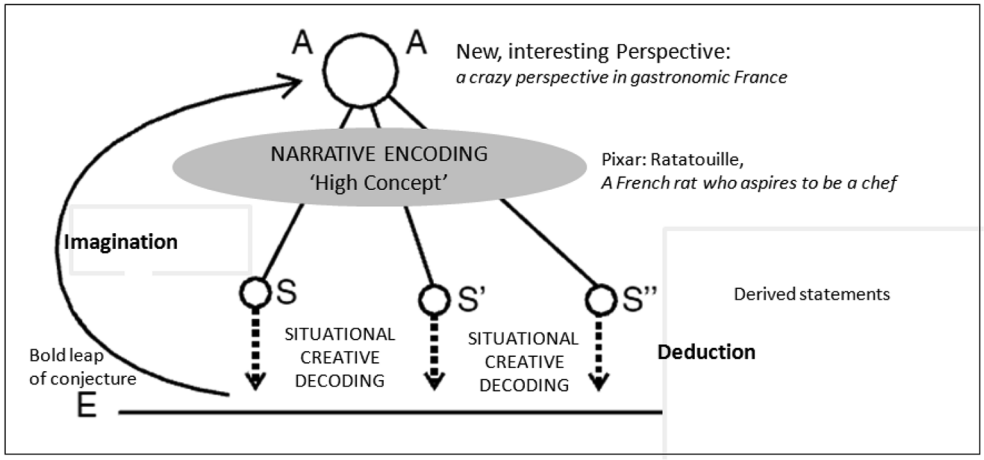


Figure 4.3 The basic process of imagineering illustrated: Narrative Encoding and Situational Decoding

The one who wants to invent new things first needs to break out of his experience (E) by making a bold leap of conjecture (J) for which one need non-rational thinking while it can not be the consequence of purely rational reasoning, reasoning based on past experiences. One has to imagine first. If the leap is successful it will lead to an axiom (A), or a new idea that has not been thought of before. This idea is very vulnerable to criticism as it has not been properly connected to the collective experience yet. So far it is just an (sometimes crazy) idea.

Wentzel (2006:28) interprets Einstein's figure further: "The axiom's implications need to be translated into statements (S), in other words the new idea needs to be connected to other elements to form a useful new creative combination. The collection of statements forms a discovery (or an invention or innovation) that has to be tested against experience (E). Einstein deliberately left a gap between the arrows and the line representing experience, to indicate that leaping and testing does not occur in relation to direct experience, but in relation to the mental construct based on experience. Einstein's process makes it clear exactly how individuals can consistently practice successful imagineering (on the individual level): by applying techniques that facilitate breaking out creatively of existing mental constructs'.

The next question which Einstein was not able to answer yet is how someone can make leaps of conjecture to potential useful axioms? While the answer of Einstein was 'intuition', De Bono pointed in the direction of lateral thinking and he developed the tools to do so. In the creative industries all kind of methods and techniques are used to escape from the known perspectives.

In order to translate the process to the collective, organizational level, a 'high concept' is designed. This narrative encoding is meant to tap into the creativity of the collective as to enrich the derived statements/interpretations of the individual agents, each in their personal context. It is the objective that as much stakeholders as possible can produce derived statements with synergetic effects on the whole story as each creator has a different experiential world and a different interaction with the environment (while working at different departments in a creative organization) which makes the source for creativity and application much broader.

But also in the creative industries, enterprise logic is evolving as it is in other industries: customers start to be seen as (creative) participants in value creation. Disney for example enables visitors in Magic Kingdom while waiting in line. Guests are prompted to submit jokes via text and these jokes are then incorporated directly into the graphic and audio tracks, creating a unique interactive experience. Even while this is a tactical use of the narrative lens as this interpretation is not about rethinking/reframing the foundation of value creation, it shows how the lens works in the creative industries and how the creative supplier builds value in the emerging way by collecting jokes (in this example) that come from their millions of guests from different cultures.

The cognitive framework of the practice of imagineering in the creative industries makes it clear that it is possible to integrate customers as creative participants in value creation, at least in the deduction process. It makes clear how the cognition of individual agents can be framed via narrative encoding and how this framing can result in generating new order via situational decoding by the individual agents and at the same time can be valuable for the organization as it is possible to learn from the jokes in different cultures and have more satisfied guests at the same time.

4.3.6 A cognitive conceptual framework for understanding strategic imagineering

Just like the high concept is not the whole story of making a successful movie, the design of an artful lens is just the first part of the story of realizing organizational emergence. Therefore we develop this paragraph on strategic imagineering in two parts: the part of the mechanism that ignites and frames the process and the part of the dynamics to manage the emerging process.

Central in the first part of the cognitive framework of strategic imagineering (as meant in this study), is the concept of dominant logic. In the context of strategic management, Bettis and Prahalad (1986:490) define dominant logic first as *"the way in which managers conceptualize the business and make critical resource allocation decisions"*. In a later article (1995) they define it as *"a 'filter' through which management considers relevant data"*.

In other academic fields such as evolutionary economics, the concept is sometimes referred to with the more general noun of business conception (Witt, 2003). In the field of marketing, the concept of dominant logic got recently renewed attention by the work of Vargo and Lush on goods-dominant logic and service dominant logic (Vargo and Lusch, 2004, 2008). Most of this work discuses the problems businesses face with dominant logic in a changing environment and they argue that firms, in order to survive and thrive in a more turbulent and complex environment, have to change their dominant logic of an industrial orientation on the creation of goods in value chains towards a more integrated orientation on service and on simultaneous value co-creation in value networks.

Existing organizations are often trapped in the industrial exchange logic and it is this industrial logic that influences data gathering (and also data neglection) and shapes strategic action. Even while these organizations often realize that new players are using another dominant logic, the logic of value co-creation in value networks, they often don't know how to make the shift towards this logic while they often realize that 'that other logic' is better suited for 'doing business' in the networked society. What often happens is that these organizations start to add the digital infrastructure to their existing way of working with all possible negative consequences such as becoming even more 'authistic' as co-creation and an orientation on shareholder value match rather badly.

Based on insights from the evolution in value creation, an existing company that is trapped in the industrial exchange logic has to make a bold leap to evolve to the co-creative networked logic by redesigning its business conception. To succeed in this bold leap of redesigning the business conception we articulate two content-criteria (the relevance criterion and the relationship criterion) and two process criteria: (tag-line articulated in the narrative mode and integrated in/added to the logo).

- The relevance criterion: Rethinking relevance is about rethinking the strategic direction away from the explicit dogma of shareholder value towards making sense for and with society at large in a way that no one other company can do this better. This is done by searching for the generative potential of the company, a field in which the company can generate value in the emerging way mode as it allows stakeholders to build upon one another creative ideas while becoming participants in value creation;
- The relationship criterion: Rethinking the role of customers or colleagues and competitors in the field into participants of value creation in the value creating network.

From a process perspective:

– The redesign of the business conception should be articulated as an invitation in the narrative mode (narrative encoding) for many reasons:
  • Articulated in simple human language, it should be inspiring and emotionally appealing;
  • It should have a heuristic and holistic property as it has to be interpreted in all kind of situations and levels by internal and external stakeholders;
– The redesigned business conception should be integrated in the identity as for example: added as a tagline to the logo, to give the evoked change a durable character as well to external as internal stakeholders.

It is obvious and interesting at the same time that the encoding from exchange logic to co-creative logic is at the same time an encoding to make the shift from classical linear logic to complex co-evolving logic: seeing and treating organizations as complex adaptive systems that co-evolve with their environment. As such the transformation to co-creative logic is essentially also the transformation towards functioning in a more complex environment. Based on this thinking and the insights on transformative organizing as articulated by Dunne and Dougherty (2012) we suggest to articulate the essence of strategic imagineering as 'reframing the business conception to capitalize on collective creativity in serving society at large'. How this can be designed for is explained in the second part of this chapter.

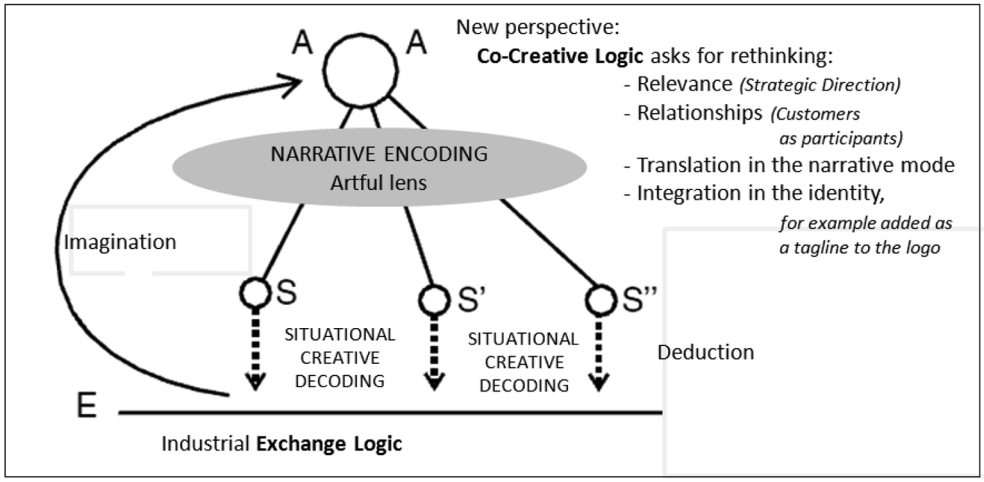


Figure 4.4 The process of imagineering applied to enterprise logic transformation

But as already mentioned: a well designed arful lens is just the first part of the story of effectuating organizational emergence, the part of igniting and reframing collective creativity in a process towards a new, more complex dynamic state. The other

half of the story of strategic imagineering consists of managing this process and this can be done inspired by the model of the dynamics of dissipative structures. We already explained this model that consists of four dynamics in previous chapter.

- FLUCTUATION DYNAMICS: The artful lens should cause an appealing mind-shift in involved stakeholders: they are enabled to see a new, more relevant opportunity horizon which makes them reflecting on the role they can play on this horizon of value co-creation. In their day-to-day actions and interactions, their day-to-day formal and informal dialogues they start to rethink their actions (decoding), their day-to-day behavior changes to be aligned with the collectively envisioned horizon;
- RE-COMBINATION DYNAMICS: they start to make their own interpretations which leads to changing routines and recombining resources in different ways;
- POSITIVE FEEDBACK DYNAMICS: If their new actions get a positive feedback they will be enthusiast to continue their thinking and acting in this new direction, even more when they discover that their actions are part of a collective change pattern. Seeing the positive evolution of the collective, others (internally and externally) start thinking and acting in this same direction and this in the end, leads to organizational emergence in a wanted strategic direction;
- STABILISATION DYNAMICS: To take care that new order emerges in the desired direction in a sustainable way, management can make use of stabilization dynamics such as the articulation of values and basic social rules or written communication about the evolving practice of the organization and its individual agents that can influence the interpretation of the individual agents and their changing behavior. This mechanism can be elements for discussion in daily practice but also in more formal assessment interviews.

Developing stabilization dynamics is crucial in making the dynamic state sustainable. As already mentioned in previous chapter, often the concept of self-organization is interpreted wrongly in the sense of laissez-faire. We suggest that developing stabilization elements, especially articulating 'values-to-live-by' are an infrastructure that allows translating hierarchical control to social control and social inspiration. In this sense we find the example of Ridley (the company that also won the Social Innovation Award in 2012 in Flanders) illustrative (see box).

Box 4.6 RIDLEY BIKES, winner of Social Innovation Award in Flanders in 2012

When Ridley-Bikes company was awarded with the social innovation award, they didn't realize that they used the perspective of 'social innovation'. But the two elements we describe as essential in effectuating organizational emergence by liberating collective creativity were in place:

– An appealing innovation horizon: BIKE VALLEY
  The company has a clear innovation horizon articulated in an artful lens/adaptive tension engine: realizing Bike Valley which is conceptualized as an open system (five companies cooperate in the concept to realize 'the top in biking of the world': for example a company in speed wear, an energy lab and a coaching company and from the beginning the group is working with the concept of open innovation;
– Managing the dynamics of dissipative structures in which stabilization elements Ridley-Bikes have articulated its values as 'BIO': Betrokken (involved), Integer (integrity) and Ondernemend (Entrepreneurial). These values are integrated and worked upon in the whole of the HRM-cycle. And regularly people remember one another that what they do should be 'BIO'.

Info from a personal talk with the Deputy CEO & HRM, Marc Hufkens, June 2013.

Based on the previous insights, processes and dynamics we create following cognitive conceptual framework for using imagineering in transforming the enterprise logic and to realize organizational emergence at the same time.

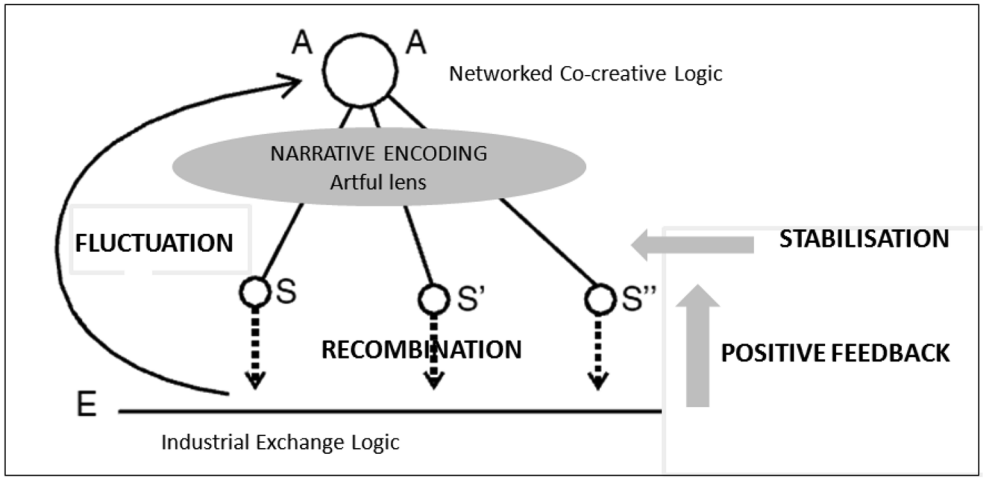


Figure 4.5 The dynamics of dissipative structures applied to enterprise logic transformation

In next paragraph we explain in detail how we think the process effectuates at the level of the individual agent in the collective setting. We call this stepping-process 'The stairway to heaven' as it makes it possible for an organization to evolve to a more sustainable dynamic state in an era of growing complexity and transparency. We will use this model to evaluate the effectiveness of the design method of imagineering.

4.3.7 Understanding the working mechanism of imagineering: 'The Stairway to Heaven'

How then do we think, imagineering results in organizational emergence?

Interpreting this process from an evolutionary perspective using the dynamics of dissipative structures, one can say that the narrative encoding of the business conception is made by an imagineer or an imagineering team on scientific insights of the evolution in value creation (the design process is explained in next paragraph). It is a bold leap from seeing consumers as 'passive consumers of value' to 'active participants in value creation' and searching and deciding about a relevant field in which value co-creation can happen in a generative way for the company. One can expect that external stakeholders will only be interested in co-creation when they can see a clear win-win situation for themselves. This bold leap has to make sense for the company in the first place as this is a strategic innovation route on a corporate level which can only get a sustainable character when being generative also for the organization.

A translation of this new value creating perspective in an artful lens causes a mind-shift in the individual agent: an adaptive tension or, better, an opportunity tension that inspires people to rethink their role in the value creating processes. As a consequence of rethinking their role, they start to change their actions in that more relevant strategic direction. This opportunity tension engine causes fluctuation as many people start to think and act differently. By deductive reasoning people start to formulate new behavioral answers which leads to re-combination dynamics.

Positive feedback dynamics will emerge as the effects of the different actions are evaluated as being positive for the business or for the goal(s) of the organization in general. By intentionally implementing stabilization dynamics the organization can take care of the level and quality of the new actions. The organization can learn to orchestrate the dynamics in a sustainable way. Integrating cognitive elements and dynamics leads to following model (see Figure 4.6). The different steps in this model are explained in the text box 4.7.

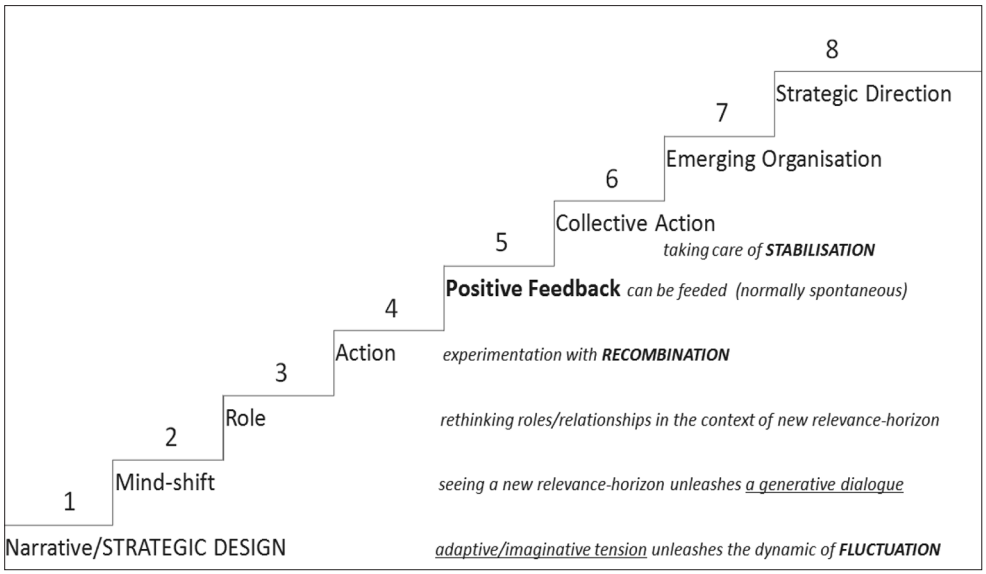


Figure 4.6 The imagineering discursive process of Organisational Emergence – *'The Stairway to Heaven'*

Box 4.7 The discursive process of the 'Stairway to Heaven' – The steps explained

The different steps can be more or less conscious and the line between two steps is not always clear.

– Step 1: **Narrative/STRATEGIC DESIGN, the artful lens,** causes **Fluctuation**
A redesign of the business conception based on three criteria: The relevance criteria, the relational criteria and the narrative translation, cause an opportunity tension.

– Step 2: **Mind-shift** leading to generative dialogue
Stakeholders, as well employers as customers as other stakeholders are inspired by the shift of the organization from a shareholder-orientation to a relevance orientation and they start to question and dialogue about the meaning of the shift.

– Step 3: **Rethinking Role** in the context of new innovation horizon
The proposition speaks to the imagination of the involved stakeholders and they start to question and dialogue about how they can join this collective movement which feels relevant to their lives.

– Step 4: **New action** by **Re-Combination**
Thinking about their possible role they start to see opportunities on how they could join the movement in their daily activities and they start to act differently aligned with the strategic relevance that is presented.

– Step 5: **Positive Feedback**
The more their new actions get positive feedback, the more the stakeholder will reflect on his/her great action and will be eager to put new steps in the strategic direction.

– Step 6: **Collective action** asks for **Stabilization initiatives**
Seeing the relevance of the new actions and their positive feedback, more individual agents will start to reflect on how they can be part of the relevant movement, how they can interpret the narrative in their concrete situation and how they can act to be part of the relevant movement. Developing basic principles, values and criteria for participation can help in stabilizing the movement on the desired quality level.

– Step 7: **Emerging organization**
All the individual changes in the collective setting result in an emerging organization: an organization that is able to function well in a more complex and open context. While the organization builds value for society in a very dynamical way, many stakeholders start to think about co-creation with the organization as to create synergies that will make themselves more relevant.

– Step 8: **Strategic Direction**
The strategic direction is the field of value creation in which the organization can be relevant for society at large in a way that no other organization is able to do so.

It is our conviction that sustainable change can only happen when individuals start to act differently and this acting differently can only happen when individuals can see a new, interesting collective perspective that motivates their (new, different) action. As such, imagination, the ability to see things as they are not there yet, is central in generating new order. Imagineering is a method to inspire collectives to (new) action of the individual agents by appealing to their imagination, by showing them a more relevant direction and enable them in a simple way to 'join the movement' by acting (slightly) different. Imagineering is a design approach that is oriented towards realising behavioural change by designing a simple positive invitation to make relevance by participating in a collective movement.

In designing for social systems, as a consequence, there is a double use possible of imagination: first there is the imagination of the designer in envisioning a better future and secondly there is the imagination as a property of the collective. When the first imagination is translated effectively in a rich artful lens, it can ignite and frame the collective imagination and the collective creativity of the network of stakeholders. In next paragraph we explain how to design for step 1.

4.4 The design method presented

This paragraph presents the design method of imagineering. It accounts for what imagineers do and how they do it when they are confronted with a complex situation. This description is a snapshot of the method that evolved during the past years and that will definitely evolve further through use and critical thought, creativity and discussion, insights from complexity science and all kind of methods and approaches that will spring off this developing framework. The intent of this paragraph is to document systematically and detailed the method as it is developed so far to provide sufficient design guidelines to be able to evaluate the effectiveness of the method in realising organizational emergence in the natural cases central in this study.

Designing to generate new order

Even when a change/evolution in mental models can happen spontaneously during the evolution as for example the evolution from the religious paradigm in medieval times to the Newtonian paradigm in later times, or by technological inventions such as the invention of electricity, it is our suggestion that it is possible to design consciously for change in social settings in case change in a more wanted direction does not start spontaneously. An interesting example is now given in the development of soccer enthusiasm in Belgium with the concept of the Red Devil Challenges: by evoking collective creativity in the more wanted direction, a new sustainable dynamic state is emerging which is at the same time fascinating and remarkable after all these years that nothing really happened. 'It is not magic but it feels like magic…' (Doyne Farmer in Corning, 2002).

Based on Banathy (1996:266) and Cross (2006:99) and taking into account that imagineers work with open systems, we define design methodology in this study as *the study of the set of coherent, related and internally consistent principles, practices, procedures and methods* that should lead designers/imagineers efficiently towards a good 'solution' to put value creation in an evolutionary mode.

In the text below we will write about the design method instead of the design methodology to avoid interference with the concept of research methodology of this study (which is the subject of next chapter).

Box 4.8 Imagineering is a practical, professional and political intellectual activity

A practical, professional and political intellectual activity

Design is as well a practical as a professional intellectual activity: it requires both practical experience and theoretical support to be able to devise a course of action aimed at changing an existing situation into a more desired direction. Mastery of a design profession can only come through mentoring, coaching, reflecting and experiential learning in addition to the appropriate intellectual development.

But besides of being a practical and professional activity, imagineering is also a political intellectual activity. In an organizational context to be useful, the design approach of imagineering must complement, and interact with existing organising and planning of activities and strategy. Without a good understanding of these processes and the possession of the aligned competencies in which a sensitivity for political issues in organizations, effective orchestration of human systems, it will be evident, effective design is not possible.

On top, imagineering is a political intervention in a human system with the intention to put the system in an evolutionary more wanted direction. Therefore it is of utmost importance to do the design work as a reflective practitioner (Schön, 1983) with a consistent and consequent future-orientation using an appreciative stance in the whole of the process. The imagineer should avoid speaking about change as imagineering is not about fixing the past but about envisioning the future by building on the collective creativity and it is a complexity-based approach which means that the imagineer works along the principles and processes of living systems. Critical thinking, dialogical interaction, positive psychology and cultural sensitivity are some of the central perspectives that characterise the way of working of imagineers as designers.

Reframing the business conception for transformative organizing asks for such an attitude not only in the design process itself but also as a management attitude afterwards as the essence of organizational emergence is about fostering collective creativity in a more meaningful direction. In the design process itself, reframing asks for reflective, critical thinking from the imagineer as he/she has to think through possible damage and possible impact on the different stakeholder groups. It asks for appreciative thinking and working, positive psychology and cultural sensitivity, not only to prevent the emergence of resistance of the system against 'change' but also to 'optimise the human conditions' to foster the conditions for collective creativity.

The whole design process of reframing starts with the search for a more meaningful organizational purpose while "a corporation [that] cannot come up with a better definition of its social purpose than profit, [it] risks alienating itself from key stakeholder groups, including employees, customers and community members" (Wilson, 2004). As such this moment of shift in society is indeed an opportunity to "guide human beings in the process of designing and developing their organizations toward more humane, participative, and productive futures" (Romme, 2003:570).

In the rest of this paragraph we present the design method of imagineering along the three steps or 'spaces' (as there is more an iterative than a sequential logic in the design steps) of a design process as articulated by Brown (2009, 2008): Inspiration, ideation and implementation, a model that matches well with other models such as that of Jones (1970): Divergence, Transformation and Convergence. For use in the imagineering process, every step/space is divided in two phases as we make use in each step of as well conventional systems thinking (A/C/E) as complex systems thinking (B/D/F). For ease of use (and also for didactical reasons) we developed the 6 sub steps of the imagineering design approach in an 'alphabetic way'.

Table 4.1 The imagineering design process articulated in the ABCDEF-model

Resource	Classical Systems Thinking	Complex Systems Thinking
	Closed Systems - **SOLUTION**	Open Systems - **EVOLUTION**
Inspiration	**A**-nalysis	**B**-rooding
Ideation	**C**-reation of vision	**D**-esign of narrative
Implementation	**E**-xperience platform	**F**-ollow up

STEP/SPACE 1: Inspiration: Discover the 'field' most relevant to co-create value

A: Analysis of facts and figures (as well at the demand side as at the supply side) of the (problematic) situation;

B: Brooding on patterns and interactions to discover generativity/ richness (Weick, 2007)/ live-giving things and reflecting on how these micro-processes can become even more relevant. (INPUT for FLUCTUATION);

STEP/SPACE 2: Ideation: design the desired behavioural change in an imaginative narrative/artful lens

C: Creating a vision on the meaningful world that can be generated through co-creation

D: Design the narrative/artistic artefact (also graphically) to evoke 'imaginative tension' (FLUCTUATION) 'Declaration of values' and 'Designing an inspiration guide' (STABILISATION)

STEP/SPACE 3: Implementation: Manage the dynamics of dissipative structures/'imaginative emergence'

E: Explore and experiment to start building the experience platform

F: Follow-up 'chapters' and Feedback (FLUCTUATION, RE-COMBINATION and POSITIVE FEEDBACK)

In following paragraphs we articulate the three steps in depth.

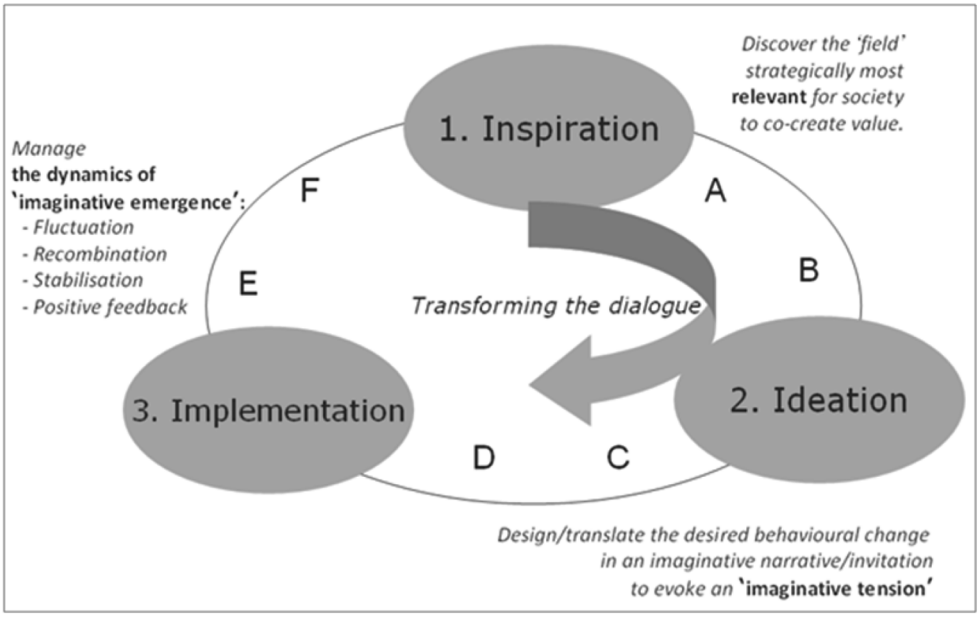


Figure 4.7 The imagineering design process

4.4.1 Inspiration: Discover the 'field' most relevant to co-create value

Objective of this stage in a design process is "…the act of extending the boundary of a design situation so as to have a large enough, and fruitful enough, search space in which to seek a solution."

Research is central in this stage: qualitative as well as quantitative, demand as well as supply, analytical as well as emotional. Traditionally the focus is on understanding the problem in context and deferring evaluation for a later stage. Efforts are made to recognise old assumptions and to escape from them by discovering and absorbing new perspectives. A recurring theme is the question whether the right questions are asked.

In the imagineering design process this step is future-oriented instead of problem-oriented. It is divided in two parts: A and B.

- A: Analysis of facts, figures and trends in demand and supply in the industry and in general (the logic) in search for augmenting the relevance of the value that can be co-created with the broader 'public';
- B: Brooding on patterns, processes, interactions, language and relationships in the micro-processes to understand the 'richness' of the dynamics (the magic). This is often forgotten or neglected in regular, conventional analysis. Some of the reasons might be that this kind of research asks time to do it effectively and it might also be the case that one needs to have a general understanding of complexity science in order to understand the relevance of this focus.

A: Analysis of facts and figures of the (problematic) situation

Analysing the (problematic) situation: understanding the logic

Design begins with analysing the (problematic) situation at both sides: the supply-side and the demand-side. However, designers are not analysts: they switch regularly between analysis and synthesis. The analysis in this case is meant to have a clear understanding of the situation at hand. It is important to say that the situation is not always seen as 'problematic' by the client. Sometimes designers are asked for help in the optimisation of the existing logic while the client is not aware of the structural optimisation that can be realised by reframing the logic of value creation. Illustrating changes in the specific industry and giving examples of how becoming more relevant to stakeholders can result in better business nowadays can help clear the situation/opportunity that exists for the client and can help to understand that in the networked society optimising the industrial logic is mostly not the solution of the situation but that the situation asks for reframing value creation logic.

Working with a design team

A design team is formed to help the designer understand the situation. The design team is the group of people that is willing to work together and answer questions of

the designer during the process. Depending on the problem the team will be composed with internal and/or external stakeholders.

The design team tries to make a clear picture of the situation reviewing relevant documents, data, implicit and explicit sources to make a clear picture of how the problematic situation has emerged. As early as possible the design team will start a conversation with the 'problem-owner': the highest authority or the issuing authority, to ensure that guidance is clearly understood at both levels and to explain the design approach that will be followed (inclusive basic principles of complexity science). There should also be made a clear statement about the kind of 'end-result' that will be delivered and the conditions under which this will be a start of an effective solution/direction. It answers the question how the designed artefact will solve the problematic situation. Throughout the process the design team will keep the issuing authority updated on all important steps.

B: Brooding on patterns and interactions to discover generativity/richness/live-giving things

Brooding on patterns and interactions: Understanding the 'magic'

All kind of qualitative techniques can be used to uncover the magic at as well the demand side and the supplier side. The search in this step is towards uncovering the generative field of value creation of the organization in which co-creation of stakeholders can be relevant. This step answers the question: Which relevance for society is lost if this organization fades away? Or else: which field of relevance for society can be build together and better with this organization than with any other organization?

Qualitative research techniques

At the demand side one can think of methods and techniques such as observation, using cultural probes (self-reporting), interviewing (for example mobile interviewing while walking through action places of the organization and laddering, a research technique to uncover core values), storytelling and gaming can be used to appreciate and approximate the tacit knowledge of consumer behaviour.

Using appreciative methods

Ad the supplier-side one should think of 'appreciative methods' of interviewing. This is not to say that a whole appreciative inquiry, summit included, is needed but the positive approach of searching for the generativity of the organization is a highly valued method to uncover the richness of a situation. Teach employees to do appreciative interviews and organising a cascade of employees interviewing one another in an appreciative way and reporting on their findings can be part of the energizing process which makes people see new perspectives for the design process. It helps in understanding crucial dynamics in the organization and energizes the system into a solution oriented mode.

Organising creative sessions
One or more creative sessions can be organised in this step to uncover the generative field of value creation of the organization and to have a first impression of the world of experience that is linked with the generative field of value creation. This will give a first, clear picture about the potential of the generative field for co-creation. The design team can decide about
– the people that will be asked to participate in the creative session(s) and
– who will be the facilitator and
– what will be the focus of the session(s) and
– what are the topics for which more ideas should be generated.

Box 4.9 The field most relevant for implementing the co co-creative logic – the example of Achmea

A few years ago the Dutch insurance company Achmea developed the vision that the best an insurance company can do, is keeping people healthy. Therefore the artful lens of the 'Health Concept' was developed.
This choice affects the company strategically: It affects
– the HRM-aspects as, for example, besides of doing the insurance work, employees are challenged with health questions and health thinking;
– the business model as, for example, besides of having the insurance business as the core-business, the company now has several 'extensions' such as
a franchise chain: Achmea Health Centers spread around the country;
a Health Magazine, freely available for customers of the company
but also sold in the regular bookshops
made by the editor Sanoma
a Health shop on internet to help people with the issues that can keep them healthy

Core of the business are still the insurances but the relevance of Achmea shifted to being the insurance that tries to keep people healthy. They now play the game in another 'value-network'.
The choice for the health concept liberates collective creativity in the whole of the network of the company.

4.4.2 Ideation: design the desired behavioural change in an imaginative narrative

Having mapped the territory of the problem in the research phase, the focus now narrows to a more practical level. This is the time to simplify, eliminate, combine, transform or modify. Objectives, boundaries, critical issues and opportunities are identified and judgements are made.

According to Jones (1970) this stage is about "…pattern-making, fun, flashes of insight, changes of set. Pattern-making … is the creative act of turning a complicated problem into a simple one by … deciding what to emphasize and what to overlook" (see box: the strategic choice of Achmea for Health). This stage "can occur unexpectedly at any time, but… should only be applied after sufficient divergence has occurred." If there are more possible solutions found, the different designs should not be mixed, instead, one should be selected.

Again, this step consists of two actions in the imagineering process: C and D.

– C: Creating a vision on the most relevant 'field' of value co-creation that the organization can appeal to and that will inspire as well internal as external stakeholders for co-creation based on collective creativity. At the same time, it should be a field that allows for the highest ROI-generation because of having the highest relevance for participation. Strategic insight is no less needed as in regular strategic planning, but here it will be translated in design: strategic design in the narrative mode.
– D: Design: Design the vision in a narrative/artistic artefact to gain heuristic and holistic capacities and frame it in a co-creative perspective. It should be evident for all kind of stakeholders that they are invited to be an active and even creative participant in value creation and it should be evident how they can participate. This narrative will evidently also be graphically designed in a way that intensifies the message. To counterbalance the openness and connectivity, the imagineer will also take care of 'stabilisation measures'. In a company without walls, values and aligned communication will be the glue that keeps the living entity 'stable': For example there should also be made a 'declaration of values' and one can also think of an inspirational guide as to invite all kind of stakeholders to participate creatively in the co-creation process.

C: Creating a vision on the meaningful world of co-creation that can be generated through 'imaginative tension'

Having a clear picture of the (problematic) situation of the logic of value creation at the starting moment and with an idea about the generative potential of the organization, the design team starts to craft a vision of how the organization can create relevant value for society together with external stakeholders. This step gives an answer on questions such as 'Where lies a better future for the organization?', How can the organization act more relevant to society and earn more money because of more relevant operating?, For which societal value can the organization better take the lead than any other organization?, What is the slightest change in the micro-processes, the individual daily interactions, that can bring the organization in the more desired direction? The vision of the desired system should be feasible with a small change (fluctuation) in the micro-processes in case many stakeholders decide to make this small shift.

D: Design the narrative/artful lens (also graphically) and make the vision and innovation horizon tangible by making a 'Declaration of values' and an 'Inspiration guide'

Narrative/artful lens – essential for evoking 'imaginative tension'

To effectuate that many individual stakeholders decide to make this small shift in the direction of more relevance for society, it is important that the shift is communicated well and in an appealing way. Following complexity logic: rules should be simple and easy as it is necessary that many people follow the new rules to reach the more desired direction. Therefore a narrative/artful lens is created which redesigns relationships and relevance and which is integrated in the identity as to make evident the strategic shift.

- relational orientation: Internal and external stakeholders are re-conceptualised as participants in a value creating movement, a movement of collective creativity. The value creating movement is initiated by the supplier but all stakeholders can take the initiative for new 'chapters' (that of course have to be accepted and formalised by the company/identity). All agents realise consciously or unconsciously that realising the desired directional shift depends on collective creative engagement;
- relevance orientation: the central orientation is on relevance for society as in a transparent society ROI can only be a consequence of relevance. ROI can never be an objective on its own as no stakeholders, definitely no external stakeholders, will be interested in co-creating this objective for the supplier;
- In the narrative mode of thinking and acting: The designed narrative should appeal in an easy and evident way to the imagination as to invite people to make their own creative interpretation in the desired direction as for example in the Red Devil Challenges which we used as an illustration at the start of this paragraph. A poetic sentence, a movie title, a not-yet-existing word… all kind of verbal imaginative constructs can be thought of that will steer the value creating network in the more desired direction. It is evident that it is very hard to design the artful lens for another culture than the own culture. In case an imagineer is trying to do this work for a different culture, he or she should dig into the narrative archive of the culture: song titles, poetry, fairy tales, photography (and so on) and should rely more on assistance from natives in designing the lens;
- Integrated in the identity: Using the logo to change the logic, for example by adding the artful lens as a tagline to the logo, is a very powerful mechanism to make the direction of collective creativity evident and incontestable. We realise that this is a big decision and maybe there is also another way to articulate the shift in identity but as far as we experienced, this is the way it seems to work and we have no idea of another way yet. Besides of integrating the artful lens in the logo, other instruments seem to be very helpful and even essential in articulating the shift as there are for example a 'Declaration of values' and an 'Inspiration Guide'.

'Declaration of values' – essential for STABILISATION (see dynamics – chapter 3)
Besides of and aligned with the narrative/artistic artefact a declaration of values will be articulated as to 'stabilize' the organization now that it is opening up for co-creation and collective creativity. Employees and external stakeholders should be very good aware of the values on which actions, interactions and co-creation ideas will be evaluated.

There should be no more than 5 or 6 values and they should be uniquely crafted based on the unique characteristics of the organization and its desired future. Those values should be formulated and known by everybody, those new in the organization and those leading the organization. They should be central in the human resources policy as for example they should be a central element in the yearly assessment conversation: how people work on these values, how they interpret them daily and how they try to become better in using them and they should be central in educational and training opportunities as to stabilize the strategic direction in the behaviour of the individual agents.

'Inspiration Guide'
During the design process the design team should create an 'inspiration guide': the tangible thing (little book, little movie or another explanatory guide) that can explain essential aspects of the organizational transformation process and the envisioned innovation horizon for evoking collective creativity: why, how, when, who and so on. One can think of following questions that can be answered in the inspirational guide:

- what is happening in society and what does it mean for the organization;
- the process the design team went through so far and how they came up with the narrative/artful lens;
- how and which specific values belong together with this reframing narrative;
- how each of them are invited to become co-designers of the future;
- how the collective can make things happen by inter-acting open and freely;
- where they can go to with their ideas and how these ideas will be evaluated and taken further.

The central objective of the inspiration guide is the communication of the designed artefact and the argumentation behind as to effectuate a mind-shift in stakeholders: that they start to see the organization and its value creation processes through a new frame of relevance for the bigger society and that they start to see how each of them can be a co-designer of the collective future.

Once the artefact is introduced, it should be evident for all kind of stakeholders how they can start to participate in the movement once they judge the proposition as valuable to their lives. For employees the artefact (definitely when it is integrated in the logo) creates an adaptive/imaginative tension that asks for interpretation in every

day activities and interactions at every level in the organization and it evokes new thinking and new expectations with external stakeholders. Seeing different can lead to acting different and if lots of people start to act different from their own perspective, using their own 'experiential archive' in making their personal associations and interpretations, new order can emerge in the organization. The organization can evolve to a new 'sustainable dynamic state' (Lichtenstein, 2012) of continuous creativity.

4.4.3 Implementation: *Manage the dynamics of dissipative structures*/'imaginative emergence'

At this stage, processes and directions become more concrete and detailed. If "unforeseen problems prove to be critical" then the design process shifts back to the transformation stage where (all) variables can be reconsidered. Implementation of the developed processes and direction can be done top-down or bottom-up and outside inward or inside outward or from both sides at the same time, resolving differences as the two processes meet.

We distinguish again two elements in this step: E and F.

- E: as exploring and experimenting is at the heart of complexity and as it is not possible to predict interpretations, the organization should build an experiential platform around the artefact which allows and even stimulates experimenting with interpretations of interactions, synergetic, around the artefact (see also the example of Achmea in the box above).
  Evaluation of the experiments will result in a choice for interpretations that will get continued and interpretations that won't. This process will most often result in a new business model and the evaluation of experiments will happen in this context of a changing business model as organizations are definitely oriented towards sustainable value creation;
- F: Following 'chapters' and feedback. Contrary to material objects, meaning is intangible and has other characteristics. When meaning is no longer 'told', it disappears. So, the organization should make a priority list to co-create the most important interpretations with the most important agents in the network first and to have a priority list of next 'chapters' for the relevant story that is being build. Positive feedback is also important as co-creators will only stay motivated as long as they feel sustained in their actions.

In the diverse steps/spaces and imagineering sub-steps of the design approach we will draw freely on methods, approaches and theories unique to an individual opportunity.

E: Explore and experiment to start building the experience platform
Seeing the world from the new perspective of relevance, interactions between employees and with external stakeholders get a new frame for rethinking routines. Employees will start to explore the meaning of the artefact for their daily actions and will start to experiment with new activities which link evidently with the new focus on relevance and match with the new pattern of co-creation. New branches (and ditto business) of value creation will emerge and as more initiatives are taken, a new business model grows as elements such as magazines, programs, education and other meaning making activities come into perspective as a consequence of focussing now on relevance and meaning.

For co-creation with external stakeholders, specific rules and contracts will be designed and people will take care of the alignment of new emerging activities and actions. An 'experience platform' is being compiled: all kind of new interaction possibilities and value co-creating possibilities which strengthen the organization, give it more dynamic and more energy in a more relevant direction. In the organization an entrepreneurial spirit starts growing.

F: Follow-up chapters and Feedback
As with the new kaleidoscopic lens many ideas will emerge, the organization has to develop a mechanism to orchestrate new coming ideas and a priority list has to be made as to decide which new ideas are more important to realize first than others. Follow-up chapters are important to keep the more intangible things alive (as these are about meaning and relevance).

And it is also of utmost importance that people who take action get feedback on their actions as they should know which of their interpretations is first of all seen by others and second, which one are most valued by the collective. Communication, an internal magazine, internal or even external website or another channel will be used/created to keep everybody updated and motivated.

In this last phase of implementation, all stakeholders are invited to co-create and co-design on a long term base and if the artifact is well designed, many stakeholders will do so. The transformation of the enterprise logic is a real opportunity to reconnect with all stakeholders in an integral way and to engage the whole system in the emerging mode of continuous innovation and progress in a more relevant direction. There are fewer possibilities to control value creating processes today but there are more possibilities to orchestrate them.

As the design method means little on its own but gains its relevance from being embedded in existing practices and academic thinking, we now start to link the method to broader organizational academic thinking and a broader perspective of management thinking as to see how these fields might be used to make operational the design method of imagineering. This linking, of course, needs further development but first the method should be evaluated on its effectiveness as we will

do in next chapters. The following thinking should be seen as a first trial to frame the design approach in existing thinking.

4.5 The design method linked to broader academic organizational and management thinking

Emergence as a complexity construct turns out to be particularly pertinent to processes such as enterprise logic transformation as this is seen as an evolution towards a more complex way of functioning (Ramirez, 1999).

Viewing deep change through the lens of complexity brings forth other ways of thinking and acting in favor of living systems as it puts the focus on the micro-processes, on dynamic patterns and on the interaction with the environment. It brings in new concepts such as the butterfly effect, sensitivity to original conditions and the dynamics of dissipative structures (fluctuation, stabilization, recombination and positive feedback) and it encourages the use of simple rules and the faculty of interpretation and collective creativity. Short, it encourages thinking in terms of evolution and the emerging mode instead of thinking in terms of solution and the reductionist mode.

Imagineering embodies both a philosophy and a methodology for deep change in the emerging mode. In this paragraph we present the four principles based on scholarly streams of thought we consider central in the methodology and that we link to the four dynamics of emergence that are presented in chapter 3. Familiarity with these principles will enable to apply imagineering in an effective way to realize deep change.

1. *The principle of imagination and collective creativity – oriented towards realizing fluctuation – creates the context for generating new order – it offers a new dynamical framing of organizational life*

'Words create worlds' is a popular statement explaining constructionist thinking. It stipulates that reality is constructed through language. Imagineering takes this thinking one step further assuming that future worlds can be created by designing imaginative words while imaginative words create an adaptive/imaginative tension. Imagineering pretends that we can influence/manipulate language to influence images in order to evolve in a more wanted direction. 'Imaginative words' enable own interpretations and enrich 'the world under construction' in the direction of a more wanted future when taken further by a creative collective. As such one can say that imagineering is generating order in an already envisioned direction. It is a methodology to realize conditioned emergence. The artifact is 'a tool to think and act with' in the direction of a common purpose. It is by influencing the dialogue of the creative collective that a mind-shift is realized and it is by the actions

taken on that new scheme that the organization learns and evolves (uses the engine of the imagination).

The narrative mode has predestination for this imaginative work as it stresses at the same time divergence and convergence. The imaginative artifact has as objective to bring the organization beyond its existing equilibrium and by integrating the artifact in the logo it can become the identity and the logic of the organization. By integrating the artifact in the logo, it becomes the message from everybody to everybody for a very long time and it makes collective creativity evident and incontestable. As such it sustains the thinking and acting for a very long time, augmenting the opportunity for realizing sustainable change.

The fact that all people have imagination suggests that all people can think and act creatively, that all people have this generative capacity. It all depends on the lenses we are able to design. There is of course a difference in the richness of some ones imagination as this depends for an important extent on the experiences one has in his or her life so far. Someone living in a big city with many interactions of different kinds will have a repertoire to 'paint with' different from someone living all his life in a very stable and unchanged village. There is an important need on how to foster collective creativity in facing complexity and in this research the transfer between creative industries and other industries can be of great value.

Table 4.2 Dynamics and Principles of Designing for Organizational Emergence

Dynamics of the dissipative structures model	Theoretical principle underlying the design approach	Design Objective	Design Specification of artefacts
Fluctuation dynamics	The principle of imagination and collective creativity	Reframing micro-processes from exchange logic to co-creative logic – evoking collective creativity as well internally as externally	Narrative mode - Heuristic (opens the imagination) and Holistic (invites, engages and involves) properties
Recombination dynamics	The discursive and constructionist principle	Inspire to explore together - People learn more when they take control of their own interactions and learnings	Artefact should change the dialogue – meaningful message - that invites for interpretation in daily activities
Stabilization dynamics	The learning and service design thinking principle	Change is approached as a learning process in which processes and experiences are made tangible where possible as well on a macro- as micro-level	Simple rules and regulations for internal and external co-designers and co-creators - Values in HRM-cycle
Positive feedback dynamics	The positive, appreciative, generative and progress principle	Amplifying constructive actions through positive feedback loops	Take care of recognising and communicating strategic creative activities in the web

2. *The discursive and constructionist principle – oriented towards recombination and exploration together*

There are two major branches in the thinking about learning: the constructivist one and the constructionist one. For constructivists, learners must individually discover and transform complex information if they are to make it their own. Constructionists, however, believe that people learn by actively constructing new knowledge, rather than by having information "poured" into the heads. Constructionists see learning typically as a relational, discursive activity (Gergen, 1982, 1994). Moreover, constructionists assert that people learn especially effective when they are engaged in "constructing" personally meaningful artifacts. It is by talking about and by working with the imaginative narrative/ the artful lens that the organization starts to change.

3. *The Learning and service design thinking principle – oriented towards stabilization – stabilizing actions that maintain the system in an attractor cage – a unifying context*

This principle recognizes that change into a more wanted direction is approached as a learning process. 'Conceptual understanding' of the artifact enables employees to act as co-designers into the direction of the common purpose. The conceptual understanding makes it possible to interpret and explore and in essence, to learn. As the artifact enables to see things different from what they are, employees are enabled and encouraged for constructionist learning in organizational settings. Contrary to the concept of change, the concept of creation is associated with the joy of life. More than adaptation, creation and learning from creation are the core of evolution and growth. Research has solidly shown that people learn more and more effective when they take control of their own learning.

Learning also means translating positive experiences concerning micro-processes (roles and relationships) in information and regulations for future use and for preventing the escalation of experiments in the direction of chaos. Besides of being about experimenting, learning is also about making processes and experiences tangible when possible and relevant as to stabilize them. As such the field of imagineering touches upon the field of service design thinking and acting. Learning is also about building the future in a constructive way that keeps people engaged and motivated. To keep imagineering going on the longer term it is important for example that for internal stakeholders key corporate identity values are made explicit and that people in the HRM-cycle reflect on how they can work with these values and can grow in these values. In working with external stakeholders it is important to describe the quality level and conditions of possible co-creation and co-design.

4. *The positive, appreciative, generative and progress principle – is oriented towards positive feedback*

The 'progress principle' is a concept formulated recently by the Harvard professor on Creativity, Teresa Amabile and her co-author, Steven Kramer (2011). This principle recognizes that what makes people flourish in everyday activities is having something meaningful to accomplish. Seeing that the small things one does, make sense in realizing a collective purpose is something very powerful in making people engaged with what they are doing. Amabile and Kramer (2011:2) illustrate this with the mission of Google 'to organize the world's information and make it universally accessible and useful'. Great leaders are able to design a path for people on which they can feel co-designers of a community that builds a better world. "When you do what it takes to facilitate progress in work people care about, managing them – and managing the organization – becomes much more straightforward; You don't need to parse people's psyches or tinker with their incentives, because helping them succeed at making a difference virtually guarantees good inner work life and strong performance' (Amabile and Kramer, 2011:10).

This principle is a literally expression of value creation in the emerging mode as all value creation becomes creation, learning and progress in case leaders are able to design a path that invites for interpretation and appreciates self-organization, a path of endless creativity and co-creation.

4.6 Summary and conclusions

Imagineering has been developed as a design approach to cope with complex problems. In previous chapters we explained that complex problems ask for joining-up approaches, approaches that allow for adaptation instead of being turned over to an end structure and an end result that might be totally destructive for some stakeholders. Complexity science offers an interesting perspective in this context as the central question in complexity science is "how to generate new order". In this chapter we explained two issues, the two sides of the same medal:

– How we think the method works, how we think new order can be generated in human, complex adaptive systems; and
– How we can design for it.

Answering the first question we explained that generating new order in human, complex systems, according to the approach of imagineering, is a matter of evoking collective creativity in the strategically envisioned direction. This is a matter of reframing mental models and in our specific context of enterprise logic transformation, this is a matter of reframing the business conception in the direction of

co-creation of value. Reframing of mental models then is a matter of cognitive processes, processes of encoding and decoding and as such it is a matter of language. We have explained that the narrative mode of languaging is supporting this reframing because of its flexibility, because of its properties of heuristic and coherence and its direct links with the imagination and the emotion.

We have explained that a well designed artful 'lens' can work as an adaptive tension engine that evokes the collective creativity to come up with new interpretations, new connections of relations in complex situations. Then we have explained that managing the emerging process along the dynamics of dissipative structures (fluctuation dynamics, re-combination dynamics, positive feedback dynamics and stabilization dynamics) offers a possible way to generate the envisioned new order in a sustainable way. All these elements and processes have been integrated in a model called 'The stairway to heaven', the imagineering discursive model of organizational emergence, the model we will use to evaluate the effectiveness of the method in chapter 6.

Answering the second part of the question we presented our design method as a regular design method in three steps: inspiration, ideation and implementation, and we explained how we use as well insights from conventional systems thinking as complex systems thinking in all of these three steps resulting in an ABCDEF-process:

Inspiration: Discovering the 'field' most relevant to co-create value by A-nalysing (facts and figures of the (problematic) situation) and B-rooding (on patterns and interactions to discover generativity/richness/live-giving things);

Ideation: designing the desired behavior change in an imaginative narrative by C-reating a vision on the meaningful world of co-creation that can be generated through 'imaginative tension' and by designing the narrative/artful lens (also graphically) that will transform the dialogue and that gives a clear impression of the new innovation horizon which will be more concretized by making instruments such as a 'Declaration of Values' and an 'Inspiration guide' and other elements that help canalize the collective creativity in the envisioned direction;

Implementation: Managing the dynamics of dissipative structures/'imaginative emergence' by E-ploring and E-xperimenting with an E-xperience platform and by taking care for F-ollow-up chapters and F-eedback.

Finally we have linked the design method to broader academic organizational and management thinking to enable the application of imagineering in an effective way in day to day practice in order to realize deep change.

Concluding we can say that in being confronted with growing complexity in society, what organizations have to do is not fixing the past but is about inventing the future. Growing complexity feels threatening for existing organizations while it challenges their existing thinking and practices. But those who dare to face complexity, the opportunities of this new logic soon appear. In this chapter we presented imagineering as a design approach, a method that suggests facing growing complexity by liberating collective creativity in a strategically envisioned direction.

Inventing the future instead of fixing the past is not about discovering and following best practices but it is about discovering and trying to understand mechanisms that work under complexity. Very often this will result in taking a systemic view instead of an individual company view as also external stakeholders should be seen as participants in value creation. It is by rethinking relevance and relationships that new approaches will emerge.

In this study we take the complexity of the creative industries as our source of reference to orchestrate emerging practices making use of the imagination and the practice of evoking collective creativity. Translating one of the working mechanisms in that industry, the movie industry, brought us to the development of the design approach of strategic imagineering, a method to evoke collective creativity by designing an artful lens 'with-the-end-in-mind', being the enterprise logic of value co-creation in open systems in the connected society.

In trying to transform the enterprise logic and In trying to influence hierarchical organizing and adaptive organizing in the direction of transformative organizing, we think (aligned with the thinking of imagineering) that it is more helpful for organizations to think and speak in terms of a liberation movement than to talk in terms of change and in terms of business innovation and social innovation as these terms keep us locked in the reductionist and determinist linear logic of the past. What we need now are methods that liberate the collective creativity of organizations and whole value creating networks. The method of imagineering suggests that an organization needs two things to do so:

- it needs to have an inspiring, relevant innovation horizon which it can communicate in an appealing way and
- it needs to manage the dynamics of dissipative structures: it needs to generate regularly new fluctuations, it needs to interact in order to recombine, it needs to have an appreciative and positive attitude and it needs to articulate stabilizing elements such as values-to-live-by that have to be managed consequently and consistently.

Finally, considering the process of how to liberate collective creativity, we suggest the articulation of the artful lens in the narrative mode and we also suggest using

the logo to change the logic. Concluding on both elements we would like to say that the articulation in the narrative mode is interesting because of its heuristic and holistic properties:

– people will be inspired to search for and come up with creative ideas in transformative interactions and
– the narrative brings parts together instead of separating them further. People from different departments and organizations will 'see' new possibilities but most often realizing these new ideas will ask for collaboration over the own boarders of existing routines.

It is these transformative interactions that generate new order and when the artful lens is designed effectively, this will lead to an evolutionary path in a more desired direction.

Integrating the artful lens in the logo, even while it will often be not the evident choice for sitting managers, seems to us an ideal way to reframe the identity and its value creating logic. All too often, processes of collective creativity are inhibited and neglected because of the social cost to find great solutions together and because of the hierarchical expectation to stay on the own level and in the own departments. In all its simplicity, this seems to us to be the most problematic aspect in reframing enterprise logic. Therefore we made this statement that it might be better to speak about a liberation movement than about a change challenge while 'liberation' might also sound as a clear invitation to important stakeholders of the macro-level in value creation in society such as governments and trades union.

We think and in the meantime we know that imagineering is not an easy story to tell to conventional educated managers and we also realize that it is not the only possible story on how to cope with complexity. But we are convinced that imagineering is a possible approach that could do the trick to make work a more playful assignment. Growing complexity comes with nothing less than this opportunity: making a more fun and social world. We only have to make our picture wider (systems innovation (Mulgan, 2013)) and our way of working more creative, participatory and responsible. In a transparent and connected era, in fact, a company has no other choice than come up with a more relevant social purpose than profit, while otherwise it risks alienating itself from its crucial stakeholders, definitely on the longer term. Also, companies with clear social purposes will be the one that work as magnets for talent and in the complex knowledge era we live in, it is the collective that matters to individuals.

5 Research methodology

Abstract

This chapter presents the methodological issues of this study. First it outlines the philosophical epistemological stance for developing organizational design science as the aim is to generate knowledge that is theoretically and practically useful in coping with complex problems that are challenging today's organizations. Then we explore and define the concept of effectiveness in the complexity paradigm and discuss methods to evaluate effectiveness. Finally we describe the research methodology and research design used in this study to evaluate the effectiveness of the design methodology of imagineering and we construct a conceptual model called 'Stairway to heaven' along which we will present our research findings in next chapter.

Dewey (1929, pp. 272–3 in: Starkey, Hatchuel and Tempest, 2009) argues that the best science adopts a pragmatic, experimental approach: 'What is needed is intelligent examination of the consequences that are actually effected by inherited institutions and customs, in order that there may be intelligent consideration of the ways in which they are to be intentionally modified on behalf of generation of different consequences'.

'The object of all science, whether natural science or psychology, is to co-ordinate our experiences and to bring them into a logical order.'
Einstein, 1955:1.

'…we have a long record of massive failure in relation to social research practices which have failed to recognize the implications of the complex nature of social systems. So complexity framed action research not only can tell us what works, we can say with some authority that it is the only way in which we can find out what works.'
Byrne, 2009:4.

5.1 Introduction

As will be expected from reading the previous chapters, the turn towards complexity also influences research methodology in general. Therefore, before describing the methodology applied in this study to address the research question of evaluating the effectiveness of the imagineering design approach in enterprise logic transformation, we first clarify our research stance building on the input of previous chapters as it is our intention to generate knowledge that is theoretically and practically useful in coping with complex problems that are challenging today's organizations. Then we explore and define the concept of effectiveness (and causality) in the complexity paradigm and discuss methods to evaluate effectiveness. Finally we describe the research methodology and research design used in this study.

5.2 Building organizational design science from practical management research

As we described in previous chapters, there is an urgent need to build the knowledge bases to guide the transition in solving complex problems in society such as guiding the transformation of the enterprise logic in individual organizations and institutions (Mohrman and Shani, 2011; Ramaswamy, 2009; Ramirez, 1999). The objective is to build prescriptive knowledge that can help improve professional practice, offering general solutions, solution concepts (Van Aken, 2005) for real world problems (Van Aken and Romme, 2009; Romme, 2003; Van Aken, 2004; Andriessen, 2007; Starkey, Hatchuel and Tempest, 2009; Mohrman and Mohrman, 2011; Beech, MacIntosh and MacLean, 2010; Bartunek, 2011).

In developing knowledge from practice the so-called 'research/practice gap' is a much debated issue in organization science. Academics are devided on the fact whether it is possible to develop knowledge that is both academically valuable and helpful for practice. Avenier and Bartunek (2010:1) argue that 'the main reason scholars hold such contradictory views on this topic central to management science is the lack of explicitness of a number of founding assumptions which underlie their discourses, in particular the lack of explicitness of the epistemological framework in which the parties' arguments are anchored'.

Avenier (2010) and Avenier and Bartunek (2010) explain that scholars who defend the view of the unbridgeability of the research/practice gap consider that organization science works on a true/false code grounded mainly in positivist and realist epistemologies. This view does not take into account the existence of certain other solidly-founded epistemological paradigms that do not work on a true/false code but for example on a 'will-it-work-better-code' (also called 'a functional fit code') which is essentially the design question (Simon, 1996; Jelinek, Romme and Boland,

2008:317-318), a paradigm in which science can be fruitfully grounded. This other, complementary, epistemological paradigm which is based on radical constructivism (Glasersfeld, 2001, 2005 and Riegler, 2001 in Avenier and Bartunek, 2010:3) and social constructionism is often ignored by scholars who consider that there is only one archetype of science, that of the sciences of nature. Doing so they ignore the archetype of the sciences of the artificial (Simon, 1996; Mohrman, 2007; Avenier, 2010) which is giving rise recently to the conceptualisation of 'organizational design science' (Mohrman, 2007, Jelinek et al., 2008; Avenier, 2010; Avenier and Bartunek, 2010).

Insights from complexity science invite scientists to pay more attention to what distinguishes open, dynamic from closed systems and to what distinguishes the social sciences from the physical sciences. Complexity scientists such as Boisot and McKelvey (2010) argue that complexity science offers the perspective to bridge the unbridgeable gap in organizational research showing how modernist and postmodernist perspectives can be integrated based on complexity science fundamentals. The challenge according to these authors is to understand when each applies. In organization science and management practice one faces as well problems of understanding closed systems in stable environments as problems of intervening in open systems in turbulent environments.

As rigour and relevance have a different meaning in the different epistemological frameworks, rethinking both concepts (or should we say 'rules') for liberating the social sciences in some situations is an urgent necessity in complex times.

Box 5.1 Philosophical assumptions underlying complexity thinking – Kuhn, 2007.

Ontology: Reality is dynamic, self-organising and emergent. It is both singular and multiple at the same time and although 'it' may be studied from various perspectives the act of study will affect the 'reality' observed.

Epistemology: Not only are the knower and the known dynamic, self-organising and emerging, the relationship of the knower to the known is likewise dynamic, self-organising, and emerging.

Axiology: Values are inherently implicated in the inquiry process. Often it will be focus on values that will guide the process toward a satisfying outcome.

The possibility of generalization: Only time and content related working hypotheses are possible unless one moves to discussion of very general organizing principles.

The possibility of causal linkages: Entities mutually shape one another so that it is impossible to distinguish causes from effects. Rather than causal linkages, other organising patterns may be identified (such as relating to attractors or edge of chaos zones).

Epistemological explicitness extends the usual scope of research methodological issues to rendering explicit the founding assumptions of the epistemological paradigm in which the research has been carried out. Neglecting epistemological explicitness is a major source of misunderstanding in the rigor-relevance debate as the terms rigor and relevance have different meanings in the different epistemological frameworks. Avenier and Bartunek (2010) for example argue that knowledge generation and knowledge justification are considered as distinct, sequential processes in the positivist and critical realist frameworks (Guba and Lincoln, 2005) while knowledge elaboration and justification are two simultaneous processes which cannot be dissociated in the constructivist epistemological paradigm. In this paradigm 'hypothesis testing and research replication across large samples are not considered as particularly valuable means of justification' (Guba and Lincoln, 1989, 1998 and Le Moigne, 2001 in Avenier and Bartunek, 2010:4).

Since central notions as rigour and relevance take on different meanings in different epistemological and scientific frameworks, and since different views of science work on different codes – true/false code in positivist views of science, functional fit code in certain constructivist views of science – we will explicitly specify the epistemological framework of this study as to make it possible for the reader to form an autonomous assessment of the knowledge generation process and check whether he or she agrees with the knowledge claims.

5.2.1 Rethinking rigour and relevance

Does science reflect the world or does science teach us how to see the world in ways that theory suggests? Ferraro et al. (2005 in Starkey et al. 2009) suggest that in the social sciences the latter is more likely and with growing complexity in society this is not what should be expected from science. It can no longer be defended that scientists focus on rigour, leaving translation to practice to others such as management consultants and management gurus (Clark and Salaman, 1998 and Suddaby and Greenwood, 2001 in: Starkey et al. 2005).

Too much rigour 'denatures and desocializes the phenomenon it studies' (Starkey et al. 2005) with core concepts such as 'the rational choice model' and with drawing methodology from the physical sciences. The social sciences especially need to be more pragmatic as social systems are open systems that essentially function embedded in a social context. Dewey argues (1929:272–3), the best science adopts a pragmatic, experimental approach:

> *'What is needed is intelligent examination of the consequences that are actually effected by inherited institutions and customs, in order that there may be intelligent consideration of the ways in which they are to be intentionally modified on behalf of generation of different consequences'.*

Now that it becomes clear that the world is being reshaped predominantly by business, organizational scholars should try to influence this reshaping intellectually. This asks for a greater engagement of management researchers and besides of creating exchanges with practice, this asks for re-imagining rigour end relevance. Starkey et al. (2005) suggest:

– *"rigour* can be reconceptualised as *the appropriate combination of different types of interaction between the researcher and his/her object of study;*
  […] As the history of science teaches us, to deepen knowledge about a phenomenon we need to intensify our interactions with that phenomenon".

– *relevance* according to Augier and March (2007:142-143) should be replaced by something more important: imagination. As a narrow focus on relevance puts too much emphasis upon the world as described and enacted by practitioners as it is, it is the responsibility of management researchers to influence solutions in a better direction for humanity.

Seen from the complexity perspective, management researchers should focus on processes and dynamics in context instead of focussing on entities. The focus should be on models of collective action in context in which a close interaction between researcher and the management research field are essential. Organizations as complex adaptive systems are assumed and observed to be sensitive to initial conditions, path dependent on their histories and open to external influences, it is unreasonable according to Eoyang (2011:318) 'to expect any two situations to be similar enough to support validity or to be predictable enough over time to allow for reliability.

It will be evident from the previous that in most of these contexts, relevance and rigour have to be redefined and are inextricably intertwined and interdependent as in most cases practitioners will be collaborators in the research effort. Starkey et al. (2005) suggest that it is the challenge for management research to design research protocols in contexts where
– relevance is a condition of rigour' and
– where the focus is not just on improving management action (though this hopefully will happen), but on improving models of action.

Aligned with the suggestion of Augier and March (2007) to replace relevance by imagination we interpret the challenge of this research to develop prescriptive knowledge for new models of collective action in the context of new, post-industrial, management logic.

Seen the above, the most appropriate frame in which to consider this evolution of management research according to Starkey et al. (2005) is through the lens of design

science: no longer working under the paradigmatic question of 'Is this true?' but under the paradigmatic question of 'Will it work better?'(Simon, 1996; Jelinek et al., 2008).

5.2.2 Organizational design research

Conceptualising management and organization research as design research builds on several premises, asks for collaboration between several disciplines and should happen in the context of a whole program of research. We explain these three particularities of organizational design research as stipulated by Mohrman and Mohrman (2011):

Assumptions
Conceptualising management and organization research as design research builds on several premises (Mohrman and Mohrman, 2011):

- that the field of organization research is a 'science of the artificial' (Simon, 1996), comparable to engineering and medical sciences, deliberately designed and redesigned as a consequence of evolving knowledge and experience;
- that organizational practice often precedes academic knowledge and that the best way to study organizations and especially their dynamics, is studying them when they are changing definitely when the objective is to generate prescriptive knowledge that can contribute to organizational change;
- that a full understanding of organizations requires three focuses:
  - "on the structures and processes that comprise the organization;
  - on the cognitive understandings and behaviours of the human beings whose aspirations and worldviews influence organizational behaviour; and
  - on the design processes, formal and informal, that organizations and the people who occupy them use to change organizational structures to better carry out their purposes in a changing environment".

Collaboration in problem-focused research
It is also important to mention that designing a complex system, such as for example an airplane, always asks for integrating different specialized knowledge and that this is also the case in designing for complex organizational situations. It is important to highlight who collaborates in a specific research process for two reasons:

- to know which knowledge is involved and will be reflected in the process; and
- because all design is a political process: how the problem is framed theoretically as well as practical and how the solution concept is implemented afterwards all depend on whose voice is represented and in what way.

It is evident that organizational design research is both evaluated and valuated on the research criteria formulated by the research participants. Limited interaction

between the research participants will therefore often lead to limited e-valuation. A real problem-focus will often create a context in which practitioners are more likely to open to influence from research but often the most important problems are 'not readily resolvable within any current community of practice' (Mohrman and Mohrman, 2011). It are especially these design problems that 'call for the combination of knowledge from multiple perspectives, expertises, and disciplines (Mohrman, Galbraith, & Monge, 2006; Mohrman et al., 1999; Van de Ven, 2007).

Programmatic research

According to Mohrman and Mohrman (2011) conducting problem-focused research that yields information useful to organizations in designing solutions to the problems they face most likely requires a program of research rather than a single study as one study mostly does not adequately address a complex problem area. It asks for working with multiple companies through different stages and modes of investigation that include as well exploratory, as descriptive, as action research. The study in each company or institution exposes the researcher's to new aspects of the dynamics of the problem field and the solution concept in its context and the experiential learning that eventually occurs as part of it. Each study setting brings new questions to be studied, and in the process of answering them, new ones raise, pertinent to and answerable in another setting with another study.

The figure below shows the natural history of our own research program. It began with our work in the creative industries resulting in the development and testing of the methodology of imagineering in the context of the creative industries. At the turn of the century there was the question of the strategy agency to translate the methodology for use in 'regular' companies and institutions outside the creative industries as designing in the narrative mode might be an interesting mode of strategic design in co-creative times. In the design context, Chow and Jonas (2010) call this translation step from one industry to another 'Case Transfer'. This step was followed by teaching of the methodology in several contexts and the testing of the method by master-students and executives/professionals in action research projects, a step called 'β-testing' by Van Aken (2004). Some of these projects had a longitudinal multiyear character.

Together with Morhman and Mohrman (2011:8) we believe that 'multifaceted programmatic research such as this—with many related studies building on one another cumulatively and recursively—at least partially addresses a number of issues that plague management research. The knowledge from early studies provides an enticement to other companies to participate in research and extend knowledge. The research programmed in this way can eventually involve enough cases with sufficient variation to learn about the many features and dynamics of complex, dynamic human systems and the boundary conditions of the knowledge. Such a

program of research is not possible without strong collaborations that include people with diverse discipline backgrounds and from diverse communities of practice'.

According to Mohrman and Mohrman (2011) the context of a research program augments the generalizability of the method as it allows for

- examining enough instances of the phenomenon to be able to draw inferences that seem valid and reliable from instance to instance taking into account the contextual variability;
- alternating descriptive and prescriptive research (Chatman, 2005 in Mohrman and Mohrman, 2011) in a longitudinal context 'helps deal with the need for rigorous knowledge and predictive power and begins to bridge the gap between the theory-driven world of academia and the context and results-driven world of organizational practice.

Collaborative design research in a programmatic context is one way to deal with the mismatch between slowly evolving methodologies and the reality of complex organizational contexts (Mohrman and Mohrman (2011). In the figure below we sketch the natural history of the programmatic research in which this study is embedded. To evaluate the effectiveness of the imagineering design method we will make use of insights and experiences we generated in the context of this program as will be explained in next paragraph.

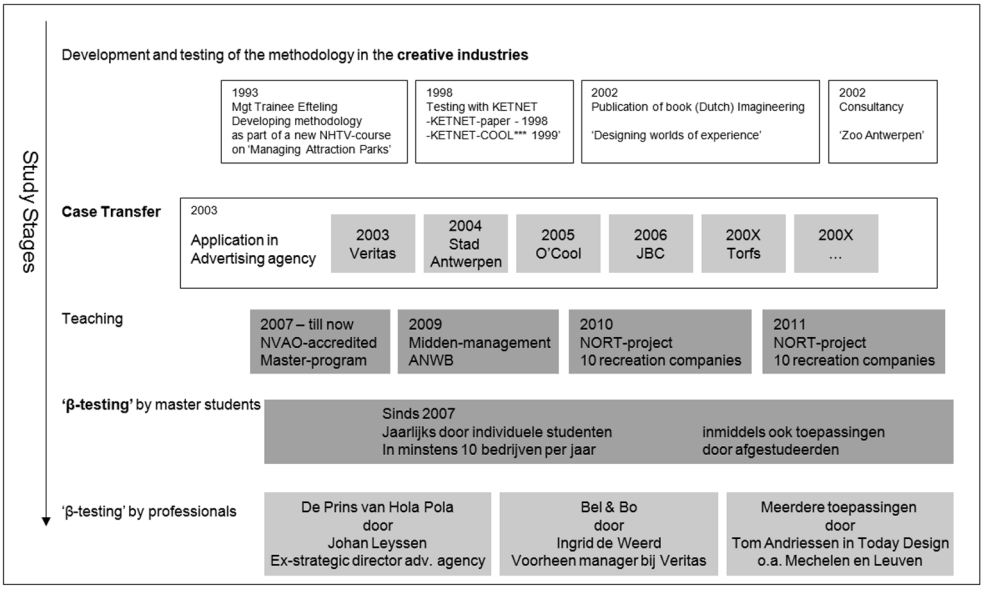


Figure 5.1 The natural history of this programmatic research

5.3 Evaluating effectiveness

As we discussed the epistemological framework in which this study is anchored in previous paragraph, the purpose of the following paragraphs is to describe the research methodology and research design used in this study to understand the effectiveness of the design method of imagineering in realising organizational emergence. Therefore, however, we first need to explore the concept of 'effectiveness' in the complexity paradigm before turning towards the research methodology and design to 'measure' the effectiveness.

5.3.1 The concept of 'effectiveness'

As stated by Simon (1996), organizations are about achieving objectives, not by maximizing outcomes but by 'satisficing' outcomes, taking into account the limitations of human capacity in relation to available information. With Simon's background in mathematical economics and operational research founded deeply in the natural sciences, optimization and effectiveness was very much about measurement and mutability by degree. Organizational effectiveness in this context was mainly a matter of profitability and productivity. In this research, however, seeing organizations as complex systems that are unpredictable and in general not mutable by degree but mutable in relation to kind – change in the sense of optimisation and effectiveness is not incremental but qualitative.

Byrne (2011:131) argues:

> *'The level of measurement which is appropriate in dealing with them is not continuous/ratio scale but nominal/categorical. The whole idea of phase shift which is central to an understanding of change in complex systems necessarily involves an understanding of measurement of change in categorical terms. In relation to organizations whose output can be defined in financial terms, this reality can be obscured by the reality of money as a continuous variable. […] However, even for commercial organizations significant change is often qualitative. […] Changes in form are usually nonlinear and involve radical shifts in size and complexity of functions.[…] although of course financial aspects are very important for them'.*

Change in effectiveness in complex systems is first and foremost a matter of categorical change. In our research the categorical shift is a shift towards a higher level of complex functioning consisting of a transformation of the enterprise logic from the exchange mode to value co-creation in the emerging mode by reframing the business conception in a strategically envisioned direction (as explained in chapter 4). This shift is expected to make the organization much more adaptive in a complex environment by strategically enabling (igniting and framing) collective creativity. 'After all, a common goal of social policy is to make decisive interventions, not to

move average levels or rates up or down by some miniscule fraction' (Rihoux and Ragin, 2004:18).

Evaluating effectiveness then can be approached the complex way, recognising the dynamics that belong to the process of emergence as they appear in nature, and the conventional way, evaluating the effectiveness of the organization on that next, more complex level. Concerning this second sense of effectiveness: As far as we know, there is not yet research available on the relationship between collective creativity or collective creative practices and effectiveness in human systems but there is interesting research available on the relationship between positivity (positive practices) and effectiveness in human systems (Frederickson, 2003a, 2003b, 2009) especially in the context of change (Cameron, Mora, Leutscher and Calarco, 2011).

In their search for empirical evidence on the effectiveness of positive practices not just on an individual but on an organizational level, these scholars find evidence that positive practices predict organizational performance and even more important, they find evidence that improvement in positive practices predict improvement in certain indicators of organizational effectiveness over time. We consider this research relevant in the context of this study on organizational emergence as we consider collective creative practices as conceptualized by Hargadon and Bechky (2006) and presented in previous chapter, as being (at least) related to positive practices (see figure on next page). Positive practices are defined by Cameron et al. (2011) in six dimensions as explained in the table below.

Table 5.1 Positive Practices Dimensions with Definitions – ***Adapted from Cameron et al., 2011***

Caring	People care for, are interested in, maintain responsibility for one another as friends
Compassionate support	People provide support for one another, including kindness and compassion
Forgiveness	People avoid blame and forgive mistakes
Inspiration	People inspire one another at work
Meaning	Meaningfulness of work is emphasized, people are elevated and renewed by work
Respect, integrity	People treat one another with respect and express appreciation for one another.
and gratitude	They trust one another and maintain integrity.

Organizational effectiveness then is measured in the research of Cameron et al. (2011) in terms of satisfaction, willingness to recommend the organization, turnover and organizational climate (with issues such as participation in policy, support of employees, relationships etc.). Based on an extended literature review these scholars offer three sources of explanation why positive practices elevate performance in human systems:

- *amplifying effects*: Positive practices provide an amplifying effect because of their association with positive emotions and with social capital;
- *buffering effects*: Positive practices also buffer the organization from the negative effects of trauma or distress;
- *heliotropic effects*: Positive practices also possess attributes consistent with heliotropism, the fact that all living systems are attracted toward positive energy and away from negative energy.

What is also of interest for the evaluation of the design method is the fact that, while on an individual level it is generally accepted that 'bad is stronger than good', Wang, Galinsky and Murnighan (2009) found out that this general accepted truth is only partly true. In three controlled experiments they found out that the negative appears to be stronger than good in influencing psychological reactions whereas the positive seems to be stronger than bad in influencing behaviour. As a consequence it seems reasonable to expect that envisioning a positive, meaningful strategic direction as is central in the method of imagineering, can influence organizational effectiveness by influencing acting in a positive way (as to change existing routines) as compared to more 'objective', conventional methods of strategizing. Being enabled to do 'good' influences action positively.

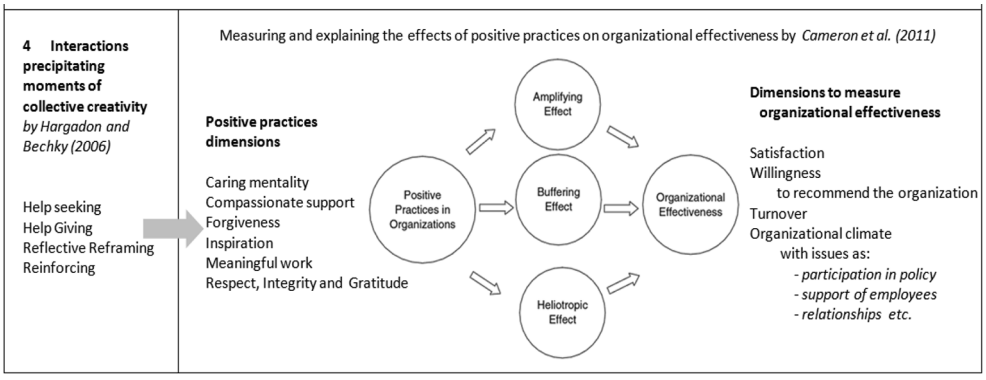


Figure 5.2 Relating interactions precipitating collective creativity to dimensions of positive practices in evaluating organizational effectiveness

While complexity researchers are oriented towards processes and dynamics and while their focus is not on improving management action but on improving models of collective action, we can say that the design approach of imagineering is effective when the dynamics of emergence are recognisable in the history of the process and when the imagineering approach leads to an augmentation of collective creativity which results in a more open and creative organization that is better able to cope with growing complexity in society. But inspired by the research of Cameron et al. (2011) we will evaluate the effectiveness of the method also in more conventional terms in constructs such as

- satisfaction of as well internal as external stakeholders;
- attractiveness in the labour market;
- turnover;
- a better organizational climate in general for which we think the concept of work engagement offers an interesting 'measurable perspective'. We explain the concept of work engagement shortly.

Work engagement is a psychological concept which recent emergence coincides with the rise of the so-called positive psychology movement that focuses on human strengths and optimal functioning. According to Schaufeli and Salanova (2007:135) "work engagement is characterized by high levels of energy and vigor, dedication and enthusiasm while working, and being pleasantly absorbed or immersed in work activities". These scholars developed a scale to measure work engagement called 'The Utrecht Work Engagement Scale (UWES)'. The scale consists of 17 statements about how one feels at work, to evaluate work engagement on the individual level. In our own research we don't use this scale as such, even while this should have been interesting, but, if the imagineering method is effective, we should recognise the characteristics of work engagement in the statements made in the coherent interviews we did (as explained in 5.4).

Statements in the UWES-scale are for example: At my work, I feel that I am bursting with energy; I find the work that I do full of meaning and purpose; Time flies when I'm working; I am proud of the work that I do. Etc.

We assume that the method of imagineering has a positive effect on work engagement by enabling collective creativity.

5.3.2 The concept of 'causality'

As we already explained in previous chapters: What matters for complexity scientists is complexity rather than simplicity. In this context of effectiveness it is important to see that the much related concept of causality has a very different meaning in complexity as it is almost always contingent, complex and multiple (Byrne, 2011:133):

- *contingent*: causality is always local as it is dependent on context;
- *complex*: causality seldom depends on the operation of any single specific cause;
- *multiple*: complex causality may operate in different ways, different causal combinations may generate different outcomes.

This means that the outcome of the same intervention can result in very different outcomes as effectuated in different times and different places and that as a consequence, it is not possible to establish universal laws applicable always and everywhere. But we can find out what works in particular sorts of places or institutions and transfer this understanding to other places or institutions of the same kind (Byrne, 2009). It also means that finding out 'what works' for any sort of complex organizational system is not a straightforward business. Several social complexity scholars such as Ragin, Rihoux (2011, 2009, 2004), Vennesson (2008) and Byrne (2011, 1998) argue how a systematic comparative case based approach can help in understanding the different 'what's' that work in relation to the achievement of objectives.

The last decades social science methodologists have given increasing attention to "causal mechanisms", making a difference between causal processes and causal effects, and to process tracing as a method for identifying and testing causal mechanisms. The latter will be presented in paragraph 5.3.4.

Bennett and George (1979:1) define these concepts as follows: *'Causal effect'* of an explanatory variable is 'the change in the probability and/or value of the dependent variable that would have occurred if the explanatory variable had assumed a different value'; *'Causal mechanisms'* are 'the causal processes and intervening variables through which causal or explanatory variables produce causal effects'.

It is evident that both causal mechanisms and causal effects are linked with one another and that the one can not exist without the other. But they are both theoretical entities that are central to the notions of causality and explanation. The search for causality requires a diversity of methods of which some will be more adapted to reveal the former and some will be better oriented towards revealing the latter.

So, to find out 'what works' we will make use of the comparative case based approach and whiting this approach, of the method of process tracing on the individual case level. We realise, however, that while we can only rely on a few case studies, generalisability will be limited. As such this study should be considered as a first step in the direction of what is called a systematic comparative case based approach.

5.3.3 A (systematic) comparative case based approach

In searching for effectiveness and causality, choosing for a case based approach is quite evident as it has been the crucial tool of organizational analysis for a long time. Also from a complexity perspective the case study method is seen as a favoured research method as it allows for studying a system as an integrated whole (Anderson, Crabtree, Steele and McDaniel, Jr., 2005; Mitleton, 2003).

In the foreword of Yin's classic account of Case Study Research (2009) Campbell writes:

> *'…in addition to the quantitative and quasi-experimental case study approach that Yin teaches, our social science methodological armamentarium also needs a humanistic validity-seeking case study methodology that, although making no use of quantification or test of significance, would still work on the same questions and share the same goals of knowledge'.*

Adding to this, Byrne (2011:134) argues that 'we have to think carefully about the content and form of case study work and recognize that what we need above all else to handle an understanding of causality through case based approaches is comparison. In other words we need to go beyond the unique description of the ideographic account of the individual case but not work in terms of the establishment of nomothetic universal rules through some ersatz version of the experimental approach.'

According to Byrne (2011), George and Bennett (2005) have a take on case studies which helps us here as 'they identify three components to case based qualitative work which is concerned with understanding causality – with helping us to work out in our language what works'. These are:

- *Cross case comparison*: a qualitative method which allows for finding 'things which seem the same in different cases but lead to different outcomes';
- *Congruence testing*: a method which 'involves advance specification through a hypothesis of the relationship between an independent variable and the examination of cases to see if the relationship holds up' (George and Bennett, 2005 in Byrne, 2011:134);
- *Process tracing*: a qualitative method of the making of histories focused on the processes of causation.

According to Byrne (2011) except from congruence testing which keeps us trapped in a variable centred understanding of causation, the other two are interesting qualitative methods in dealing with causality in a way that it can help us in finding out 'what works'. We will use both methods in evaluating the effectiveness of the design method of imagineering.

Process tracing

Process tracing is a method for identifying and testing causal mechanisms. It is a method 'intended to explore the process by which initial conditions are translated into outcomes' (Vennesson, 2008:224), a method for generating and assessing evidence on causal mechanisms. According to Bennett and George (1997) there are two very different approaches in process tracing: process verification and process induction.

Bennett and George (1997) describe both approaches as follows:

– *Process verification* involves testing whether the observed processes among variables in a case match those predicted by previously designated theories. This process is sometimes called alternatively *'pattern matching'*.
We will use this approach observing whether the dynamics of dissipative structures are recognisable in the history of the organizational process in a longitudinal perspective;
– *Process induction* involves the inductive observation of apparent causal mechanisms and heuristic rendering of these mechanisms as potential hypotheses for future testing. For process induction in this study we will make use of the complexity-based 'Stairway to heaven'- model which we developed in previous chapter.

Process tracing is defined by Byrne (2011:140) as 'the making of histories focused on the processes of causation'. It is a method which according to George and Bennett (2005:206) is 'well-suited to testing theories in a world marked by multiple interaction effects, where it is difficult to explain outcomes in terms of two or three independent variables – precisely the world that more and more social scientists believe we confront'. Process tracing requires 'detailed engagement with the actual historical development of specific cases and results in the development of causal narratives' (Byrne, 2011:134).

Respondents are required 'to construct a reflexive evaluation of the current character and orientation of their organization and also, if possible, to remember back' several years and do the same for that time point. Apart from problems of memory, often respondents can not answer this question from personal experience as they were not yet relating to the organization at that moment back in time that the intervention took place.

This raises the question whether process tracing is anything more than good historical explanation. It is evident that the task of the scientist is different from the task of the historian. A process-tracing explanation requires 'converting a purely historical account that implies or asserts a causal sequence into an analytical explanation couched in theoretical variables that have been identified in the research design.

And this of course might result in some loss of richness of which the researcher should be aware.

Cross case comparison
Cross case comparison then 'enables us to move from the detailed narrative of process tracing through specification of attributes which characterise multiple cases into the construction of configurations which represent multiple combinations of attributes leading or not leading to outcomes' (Byrne, 2011:134-135). Qualitative comparison allows for finding 'things which seem the same but lead to different outcomes, and then go into the cases further to find what else is different about them. It is a technique that 'develops a conception of causality that leaves room for complexity' (Rihoux, Rezsöhazy and Bol, 2011:12) in the sense that 'each case is considered as a complex whole which needs to be comprehended and which should not be forgotten in the course of the analysis'. Besides of embodying some strengths of the case-based approach it also embodies some key strengths of the quantitative or analytic-formalized approach opening up the possibility to produce generalizations.

5.4 Research design of this study

This is an evaluative qualitative study based in essence on a reflection on two natural experiments that were realised by the author in 2003 and 2004. Data construction relied on coherent conversation with strategic involved employees in both cases complemented with document analysis. Coherent conversations were transcribed and on this written material different complexity-based analytic techniques were used which we discuss below. We make remarks on the validation of our findings and on the limitations of the research design and we finish this paragraph constructing a conceptual model according to which we will present and evaluate our findings in next chapter.

5.4.1 Cases

For this research we make use of our first two cases we worked upon in cooperation with the strategy agency LDV Bates, located in Antwerp:

- a commercial case being the Belgian retail chain Veritas, the oldest Belgian retail-chain, offering sewing materials with some 60 shops in 2003. In the meantime this retail-chain grows until some 100 shops now in Belgium with plans to grow on an international level. In 2003 the retail-chain was said to be nearly bankrupt. In 2011 the chain has gained the award of 'Retail chain of the year' in Belgium
- A governmental case being the city of Antwerp. Antwerp is with some 500.000 inhabitants, the second biggest city of Belgium. In 2004 the city suffered from growing extreme right movement and had a lot of negative press in the neigh-

bouring countries. In 2010 the city of Antwerp won the Financial Times Award for her strategy to attract foreign investments. FDi Magazine, the renowned publication of the international business newspaper Financial Times, chose **Antwerp** from a list of 52 cities. Antwerp received the biannual award European Cities & Regions of the Future 2010/2011 in the category of 'small cities for FDI strategy' (= Foreign Direct Investment strategy).

Natural experiments

The two cases that were chosen are 'natural experiments' (Mitleton, 2003; Blecic and Cecchini, 2008), cases which are not programmable. In both cases the strategy agency asked for complementing the graphical design work with organizational design thinking originated from the creative industries. Insights from complexity thinking were used in redesigning the logo of the organizations without mentioning this 'scientific fact' to the organizations at stake at the time of the intervention.

Natural experiments are not experiments in the sense where the researcher is testing something and controls the situation. Natural experiments are not controlled and there is no closure. It is a natural situation that can be used (afterwards) and exploited by a researcher for observational studies which can be undertaken to assess the outcomes and impacts of an intervention without the researcher having designed or influenced (consciously for the research) the original situation and intervention. Natural experiments are seen as a legitimate method of inquiry to study human phenomena in the life-world. They have the potential to explore complexities that are beyond the scope of more controlled approaches. They allow for detailed closeness to real-life situations as for developing a nuanced view of reality.

Mitleton (2003:3) argues: 'A natural experiment is one where the organization itself wants to experiment and to explore different *ways of working and relating.* That is, the way that people interact, communicate and work together– the 'way of relating' reflects the informal structure of the organization and if this changes it could have significant implications on ways of working or how work is done, how procedures and processes are undertaken. To use the language of complexity, when individual agents change their patterns of interaction new structures or new properties *emerge*.

Besides of these natural experiments that we use as core cases in this study, we make use of other (governmental and commercial) case-material in which the author was involved directly or indirectly. These cases are introduced in next chapter.

5.4.2 Data construction

To construct our data we made use of dialogical research in coherent conversations with interviewees with strategic responsibilities in the organization today and we

analysed written material which was handed over by the strategists at the end of the conversation on our question for illustrating materials.

Box 5.2 Data construction in this study

-Dialogical research: not just eliciting information but processing it

with a focus on relationships and connectedness.

- Coherent conversations: *a research technique that invites people to generate narratives through conversations leaving the direction of the conversation open to emerge from the entirety of knowledge, information and opinions from the interviewee(s). Executing them implies dialogic and interpretive engagement to examine the dynamics involved in the emergence of different points of view.*

- with involved practicing strategists (8 interviews in both cases):

in Antwerp in conversations with duo's, at Veritas in one-on-one conversations;

- deliberatly 'impoverishing' the start of the conversation (the logo and its possible effects).

- Selection criteria strategists:

- having a well articulated idea and understanding of the transformation that has been going on for so many years;

- being able to evaluate independently what happened at the time of the change of the mayor/the intervention;

- not having yet a clear fixed and shared meaning on the specific topic of the transformation and

- being able to talk freely about strategic issues.

-Analysis of written documents

Dialogical research

As the whole research program is going on for more than ten years now, generation of insights has evolved from an intuitive approach into a systematised approach in this doctoral study. Central in all our work is a dialogical approach to research: Data are not just collected but constructed in dialogue with expert informants. According to Byrne (2011) using a dialogical approach is effective in finding out what works but it is even more important to find out what we don't know, a process he calls 'machining hermeneutics'. This will take us forward to more qualitative engagement. Combining documentary research, oral testimony to develop rich historical accounts, and ongoing interviews and discussions (including focus groups) with the informant group, we are inevitably engaged in dialogical research: 'We are not just eliciting information from informants. We are processing it and then taking the results of that processing back to informants for further discussion – we know this much and, even more importantly, don't know this much' (Byrne, 2011:140).

Coherent conversations

For this specific study coherent conversations were done for the two cases as complexity scholars developed this specific method to try to capture the dynamics and

coherence of the processes effectuated by the introduction of the artefact (Kuhn and Woog, 2006). Employees with strategic responsibilities in the two cases were asked to construct a reflexive evaluation of the current character and orientation of their organization and also to remember back, if possible, the situation at the time of the introduction of the new logo. In the case of Antwerp we used 8 paired interviews. In the case of Veritas we changed this approach to 8 individual interviews as there were not so many employees with strategic responsibilities available as in the case of Antwerp. All coherent conversations were video-taped and transcribed afterwards.

The reasons why we initially preferred paired interviews were multiple:
- to generate richer conversations by allowing participants to challenge one another's views and memories;
- to provide opportunities for interaction and discussion;
- to have a better balance of interviewees to interviewer as to make it physically clear that it was about their story as an organization and that the researcher was only the moderator of the conversation. The fact that the researcher was involved in the creation of the artefact seemed to us to contain the risk of focussing too much on the artefact instead of the (eventual) evolution and dynamics of the organization.

Central orientation of the search in these coherent conversations is the elicitation of processes of becoming of the organization starting at the time of the intervention. It is predominantly in the narratives of strategic responsible employees about their actions that the 'opening and emergence' of the organization should be recognisable. Their conversations then can serve as a basis to understand the effectiveness of the artefact/strategic design to elicit organizational emergence in detail.

'As an inquiry method, coherent conversations have the following characteristics (Kuhn, 2009:86). They
- are permissive not agenda bound, allowing people's priorities and own agenda's to emerge;
- may reveal the way people think, as much as what they say;
- make the conversational dynamics and relationships as apparent as everything that is being said;
- are self-reflective of the conversational process;
- are both intuitive and logical.
- Intentionally impoverished start

We explain the last characteristic: The aim of coherent conversations as a research technique is to invite people to generate a narrative through conversation as to grasp the dynamics involved in the emergence of different points of view (Kuhn & Woog, 2006). For that reason the conversations were intentionally impoverished by focusing solely on the possible effects of the logo. By limiting the focus in this direction

we left open the direction the conversation should take and whether the conversation should unfold on a tactical or a strategic level. As it is our assumption that the designed artefact has the potential to unleash processes of organizational emergence, we assumed that it should have the same effect on our conversations.

We asked all informants:
1. How do you see the organization before and after the introduction of the logo?
2. What was the role of the logo in the whole of the transformation process? (Content/process/effect)
3. In what way does the logo influence the behaviour in the organization/your behaviour?
4. How do you think the logo and its eventual influence will evolve in the future?
5. Do you have any negative remarks about the logo?

In organizational settings, coherent conversations can be used as an inquiry method that facilitates emergence. Whereas designed situation interventions are outcome-driven, coherent conversations create enhanced potentiality' (Kuhn, 2009:86).

All the time the research kept the characteristic of an emerging participative exploration:
– conversations evolved with growing insight based on former conversations and
– conversations also evolved with growing theoretical insights, theoretical knowledge that was specifically searched after to understand some of the 'remarkable' answers from interviewees.

'Languaging into being'
According to Kuhn (2009) coherent conversations strengthen the 'communicative connectedness' and they also reveal the 'phrase space', In analogy with the physical concept of phase space (being for water for example ice, gas, liquid), Kuhn builds the concept of phrase space as an image to facilitate research or as a kind of researching tool referring to the capacity of 'languaging into being'. Humans create their understanding of their world from living and participating in 'phrase spaces'. Analysing the narratives generated in this kind of coherent conversations can learn a lot about the organization and its dynamics.

Interviewees
In the case of Antwerp fourteen of the key informants were initially identified through the 'Director Economy and Work' who was our contact person during this evaluation process. Some of the interviewees were already working with the city at the moment of the intervention, others were not. All interviewees were checked on the criteria (as mentioned in the figure above) and two other were added as they were mentioned later in some of the conversations as employees that were already working as communication strategists at the moment of the intervention, were still

operating in that context and met the three selection criteria. Semi-structured one- to two-hour coherent conversations were conducted with duo's that had been arranged by the people on the list themselves spontaneously as soon as they were invited by mail to participate in pairs in this research process.

In the case of Veritas all interviewees were identified by the CEO Marc Peters and were checked on the criteria before being interviewed.

Document analysis: secondary data and observation
Finally, informants were encouraged to give any additional information that might have influenced the transformation process or to bring into the process written documents that might illustrate the content of the conversation. These documents were used as circumstantial data and analysed on their additional information and notes were made in a research logbook.

Other secondary circumstantial data consisted of the annual year reports from the city starting in 2000. Besides of this intentionally collected info, during the years we observed all kind of info by visiting events, reading papers and magazines, watching television and searching websites as our involvement of the phenomenon was influenced by our participation as creators of the 'icon'.

This wide-ranging array of conversations and secondary data provided a rich context to understand the emerging process of the transformation and the possible role of the artefact in this transformational process as they uncovered key actions, events, interactions, their sequence and their nonlinear and cumulative effects.

5.4.3 Data analysis

The narratives generated through coherent conversations are analysed through the complexity-based techniques of fractal analysis and attractor analysis developed by Kuhn and Woog (2006) in order to trace the process of transformation and the effect that in this process is attributed to the narrative construct that was integrated (added as a tagline) in the logo (process induction). Further, these narratives are also used for pattern matching as to explore whether the design method of imagineering is effective in evoking and sustaining the dynamics of organizational emergence (process verification). Finally these narratives are used to compare them with other case material in which the author was directly or indirectly involved.

Box 5.3 Data analysis in this study

- Pracess Tracing: Process Induction and Process Verification

  Process Induction via Fractal and Attractor Narrative Analysis;

  Focus of analysis: 'The making of histories focused on the processes of causation';

  Process verification via pattern matching with the dynamics of dissipative structures;

  Focus of analysis: 'Pattern matching'.

- Cross Case Comparison

  Focus of Analysis: 'Finding things which seem the same but lead to different outcomes';

  Cases: extra case material in which the author was directly or indirectly iinvolved;

  Data Construction: Personal reflections on material and document analysis;

  Data analysis: The reflexive approach methodology (Stacey and Griffin, 2005).

Process induction via Fractal- and attractor narrative analysis

Fractal narrative analysis

Fractal is a concept introduced by Mandelbrot (1977), referring to self-similar patterns. The concept of fractality suggests that systems may be examined for patterns of similarity. The key principles are:

– Fractals exhibit the same degree of irregularity at different scales;
– Observing a fractal provides information proportional to the scale;
– Lower levels are as complex as the whole.

According to Kuhn and Woog (2006:12) 'fractal narrative analysis is a useful way of making sense of narratives generated through coherent conversations. Looking at individual fractal comments and locally 'captured' narratives provides an appreciation for themes and nuances replicated throughout the larger complex system within which the conversation is situated'.

In the research technique the fractal image is 'almost unbound in its potential to stimulate conceptualisation, imagination and interpretation in the observer, without losing connectivity – the so called character or identity of the fractal. For each theme, a composite response is constructed drawn from the respondents' responses. The reason for constructing these composite responses is to combine the fractals into a singular narrative. 'Such a narrative seeks to represent coherence and an emergent understanding as a commonsense reality'. The fractal comments are then brought together as a coherent narrative for all of the major topics. Validity then is sought through inviting the participants to respond to this construction.

'By looking at the individual fractal comments and the composite fractal narrative, the reader is able to gain an appreciation of the richness of detail as well as an emergent, coherent meaning. In narrative terms, this gives the elusive character sought after by narrative analysts: that of evocative, suggestive richness along with clarity and validity of explanation' (Denzin and Lincoln, 1994 in Kuhn and Woog, 2006:14).

Attractor narrative analysis
An attractor is an organising force (for example the sun in our solar system or a friendly gregarious person at a party) resisting dissipation and entropy. They influence the movement in systems.

According to Kuhn and Woog (2006:12) attractor narrative analysis 'enables researchers to make sense of the narrative without simplification. The identification of attractors (of meaning) assists with understanding a complex system. From the attractor, one can make inferences about the self-organising character of the system including interpretation of form and dynamics'.

One way to identify an attractor is by studying the patterning of fractals around attractors and to study how attractors interrelate. Attractors influence the organizational dynamics, the value system and the purpose of the community.

Process Induction
Analysis of the findings of the inquiry were organised first as fractal narratives (constructed as much as possible in the literary words of the respondents). These were obtained from the answers 'emerging' on the five key questions as articulated above (the 'impoverished start').

Through the coherent conversations generated around these five research questions, a significant body of narrative was developed in which certain recurrent themes or explanatory fragments of statement were recognised, which were described as fractal comments. We clustered these cumulative fractal comments drawn from the respondents' responses as to construct a composite response for each question into one singular narrative. According to Kuhn and Woog (2006) such a narrative represents a coherent and emergent understanding as a commonsense reality.

The fractal comments were then brought together as a coherent narrative for all of the five questions. These coherent narratives can be found in Dutch in the attachment. Validity was sought through inviting the strategists to respond to this construction.

By looking at this material of composite fractal narratives, the reader is able to gain an appreciation of the richness of detail as well as an emergent, coherent meaning.

In narrative terms, this, according to Kuhn and Woog (2006:14) "gives the elusive character sought after by narrative analysts: that of evocative, suggestive richness along with clarity and validity of explanation" (Denzin and Lincoln 1994). It is this material on which we based the presentation of our findings along the lines of the conceptual model ('The Stairway to Heaven') we present below.

Process verification via Pattern Matching with the dynamics of dissipative structures

According to Yin (2009:136) pattern-matching logic is one of the most desirable techniques for case study analysis. 'Such logic (Trochim, 1989 in Yin, 2009) compares an empirically based pattern with a predicted one (or with several other predictions). If the patterns coincide, the results can help a case study to strengthen its internal validity'. Pattern matching is seen as the core procedure of theory-testing with cases. According to Hak and Dul (2009) 'testing consists of matching an 'observed pattern' (a pattern of measured values) with an 'expected pattern' (a hypothesis), and deciding whether these patterns match (resulting in a confirmation of the hypothesis) or do not match (resulting in a disconfirmation)'.

The model used for pattern matching in this study is the theorized model of the four dynamics of dissipative structures: fluctuation, recombination, stabilization and positive feedback (Prigogine and Stengers, 1984, MacIntosh and MacLean, 1999, Chiles et al. 2004) which has been validated in several organizational studies such as the one of Chiles (2004) and Plowman et al. (2007a). Their explanatory study suggested a strong match between this theoretical perspective and the empirical processes they uncovered in situations that were considered as being exemplary for organizational emergence. In our study we use this same theoretical perspective of dissipative structures to evaluate whether in our two cases it is possible to recognise the dynamics of organizational emergence.

Cross case comparison via the reflexive approach methodology

As already mentioned, cross case comparison enables us to go beyond the unique description of the individual experiment in finding out what works. Cross case comparison is of course 'the fundamental basis of the comparative method' (Byrne, 2011:135). Aligned with the core concept of 'comparison', we bring into the analysis all kind of case material in which the author was directly or indirectly involved as material for comparison with the two natural experiments which we analysed in depth. We use the case material in this analysis more as a dialogical device to explore theoretical positions and practical applications than as a source of 'evidence'.

Doing this we will adopt the reflexive approach methodology (Stacey and Griffin, 2005) which is essentially emergent and exploratory in nature. If patterns emerge in local interactions in a self-organising way then it follows that one can only really

understand these processes from the local interactions and the reflections of the researcher on the micro-processes which he is directing directly or indirectly (researcher as knowledge provider). It follows that the research method can never be purely rational as supposed by the classical, positivist scientific method. The research method will always be subjective, or, as Stacey and Griffin (2005:9) argue, a paradox of detached involvement: it will always be coloured by 'the inevitable emotion that is aroused in the experience of interacting with others in order to accomplish some joint task'.

5.4.4 Validation

The following two forms of triangulation provide checks on the validity of this study:

- triangulation of data obtained from coherent conversations and secondary sources to result in one unified fractal narrative that is presented to the participants for feedback;
- triangulation among methods of analysis by invoking fractal- and attractor narrative analysis and pattern matching.

Throughout, we used the constant comparative method, which includes checking new points of view that emerged in one conversation in the following ones and incorporating them as the research process continued.

Finally, after the whole analytic process we mailed the participants analytical summaries with instructions for evaluating their accuracy and comprehensiveness

5.4.5 Data presentation: A Conceptual model to present and evaluate the findings– '*Stairway to Heaven*'

In order to present and evaluate the findings, we constructed a conceptual model in which all steps and dynamics (of dissipative structures) are integrated that lead from strategic design towards organizational emergence in the envisioned strategic direction. We will use this model (and these steps) to present and discuss our findings in next chapter and to evaluate the method on its effectiveness.

Below we explain from the theoretical perspective what should happen in every step to evaluate the method as being able to evoke organizational emergence.

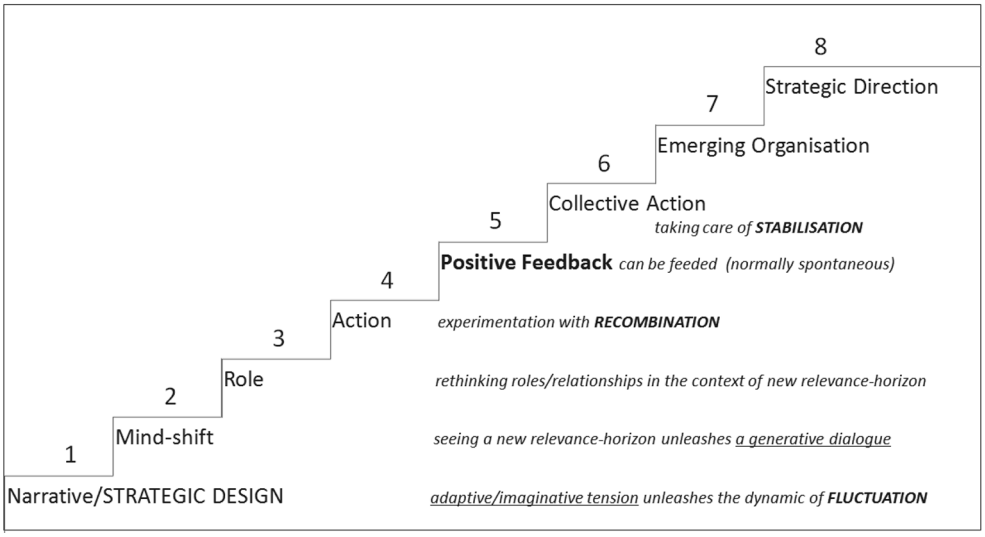


Figure 4.6 The imagineering discursive process of Organisational Emergence – *'The Stairway to Heaven'*

Step 1: The designed narrative/artefact/Strategic Design
The designed narrative is the essential imagineering strategic design step that is meant to cause the adaptive/imaginative tension that unleashes the dynamics of dissipative structures starting with the dynamic of fluctuation. It is the dynamic of fluctuation that, according to Prigogine, underlie all evolution in living dynamic systems.

The designed artefact is a reformulation of the (industrial) business conception in which roles/relationships and relevance/responsibilities are reframed in the narrative mode. It causes an 'imaginative tension' in the individual agents as to unleash 'fluctuation dynamics'. The reformulation should evoke sufficient disequilibrium to create the degrees of freedom within which the system can change through a process of collective creativity leading to self-organization, if managed properly (taking into account the other dynamics of dissipative structures).

In order to be effective as an 'imaginative tension', the strategic design should be aligned with four criteria (two content-criteria and two process criteria as explained in previous chapter) to unleash the next steps of 'The stairway to Heaven'. The artefact should

Content-wise:
- have a **relevance-orientation** that creates the chaos that flows from challenging existing perceptions. It should appeal to the imagination, being a rational as well as an emotional challenge for the individual agents;
- have a **relationship-orientation** which invites for acting different while rethinking roles (symmetry breaking (Gemmill and Smith, 1985)). The 'invitation for participation' is an essential step in transforming the enterprise logic from exchange logic to co-creative logic. This makes it possible for a new strategic direction to emerge as a never ending story of continuous co-creation;

Process-wise:
- be articulated explicitly in the **narrative mode** to promote in a very simple and flexible way, the conditions for spontaneous self-organization. Individual agents should be inspired to interpret the narrative from their own situation in the collective of the organization in the midst of their broader environment;
- be integrated in the identity of the organization as for example by adding the artefact as a tagline to the logo of the organization and by using the artefact as a point of reference central in the assessment interviews of the employees.

The integration of the strategic design in the identity of the organization is meant to make collective creativity unquestionable and to prevent the system from re-stabilizing the original equilibrium which often seems to be a natural tendency. Sustaining the disequilibrium state for an extended period is said to be a prerequisite aspect of emergent order creation. Articulating the imaginative tension explicitly is essential in making the transformation effort sustainable.

Step 2: Mind-shift
Individual agents can see a new horizon of relevant value creation and are invited to make their own interpretation in a positive, constructive way. Imaginative tension causes a generative dialogue that is essential in causing a mind-shift which, on its turn is essential in effectuating innovative action which will often unconsciously lead to changing routines. As Cooperrider and Godwin (2011) argue: innovating is something else than fixing. The adoptive/imaginative tension makes people see possibilities which were not possible to see from the former (industrial exchange) business conception. The simplicity and evidence of the construct will be decisive to make as much agents as possible 'see' the new horizon. What makes this mind-shift different from regular brainstorming is the fact that people start to see new possibilities in a strategic (more desirable) direction collectively and that this collective discovery leads to collective creativity: coming up with new and useful ideas/ways to recombine existing elements to end up with new, creative solutions to challenges.

Step 3: Rethinking role/relationships
From being able to see a new, more relevant horizon, Individual agents start to imagine possibilities of co-creation. They start to interpret the new relational framing in their day-to-day professional activities. Daily they start to reframe their actions in the context of this new relational possibility, a possibility that is catalysed predominantly by the digitalisation in the network society. It is important to state that this is not about 'adding social media' but about rethinking the deep structure of value creation which can only happen in combination with the former step of seeing a more relevant horizon of value creation. This step is first of all about new meaning and afterwards, possibly, about technology.

Step 4: Action – changing routines
Rethinking roles and relationships results in different actions and, as already mentioned, often unconsciously, changing routines. Individual agents start to experiment and recombine their own ideas and resources in a new relational frame. This experimenting is important as Ashby (1956) has noted: the generation of variation is the best tool for dealing with variability and uncertainty in the environment. Experimenting by changing action is the essence of the transformative process. This is the essence of the dynamic of recombination and for this dynamic the narrative mode has great potential as narratives act as translation devices in idea recombination, in resource recombination and in solving real-time problems as they offer the possibility for 'generative imitation' (Tarde, 1962 in Bartel and Garud, 2009) and for 'interpretive flexibility' (Pinch and Bijker, 1987 in Bartel and Garud, 2009).

Narratives also have the capacity to interest stakeholders because of the element of familiarity besides of the elements of novelty they have (Barry and Elmes, 1997). So, also other stakeholders, internal as well as external, will see a new horizon of relevant possibilities from their perspective and also they will rethink relationships and roles and start to experiment with new, more relevant options of value co- creation with the 'inviting' player. As a consequence recombination dynamics can start from different directions and perspectives and will ultimately result in a changing business model.

Step 5: Positive feedback
Once in disequilibrium state, small experimental actions can be amplified through positive feedback loops and a cycle of self-reinforcement. As we argued above: 'bad drives psychological reactions but good propels behaviour, it propels action' (Wang et al., 2009). Seen the essential role of the positive in living dynamic systems, it is evident that imagineering is essentially a method of positive design in human systems.

A process of 'deviation amplification' (Maruyama, 1963) creates a dynamic whereby the emergence of one action in the system increases the likelihood of a 'scaffold of

emergence' (Holland, 1995). Despite the absence of a central controller, the system's components 'communicate' as they are connected in a web. Normally while being more relevant, positive feedback on value creation starts spontaneously and amplifies but it can also be amplified extra by feeding it consciously in human systems.

Step 6: Collective action
The integration of the narrative in the logo is not only important to prevent re-stabilisation, it is also important in making individual actions a component of collective action. Integrating the narrative in the logo works as a collectively shared new frame of reference. Experimenting collectively, of course, asks for taking care of stabilisation dynamic, if not taken care of this dynamic, experimentation can result in lots of loss of quality and, potentially, loss of identity.

As argued in chapter 3: Stabilization dynamic and mechanisms play an important role in moving the system into a new order or configuration. Stabilization is not as much about equilibrium but about the deep structure, principles, values and basic social rules, about the framework that facilitates a collective mind, shapes novelties and guides choices in a way consistent with the system's accumulated history and learning, preserving the system's identity and core behavioural patterns (Smith, 1986).

Step 7: Emerging organization
If all these steps are recognisable and the dynamics are discovered in the transformational process, one can say that the organization behaves as a dissipative structure, comparable to other dissipative structures in nature. The organization can be said to evolve towards a more complex level of functioning aligned with the more complex environment.

As Gemmill and Smith (1985:754-755) argue: *"The greater the misalignment with the environment, the less it can depend upon the environment for the energy it needs to renew itself."* And also *"Aside from experiencing turbulence beyond a threshold, the system that successfully becomes a dissipative structure must also open to change, must be able to break down old system functions and generate new ones, and must possess certain inherent stabilities that will assist in the reformulation process. These characteristics make possible the necessary coherent behaviour that a system must engage in, if it is to survive the intense transition taking place in its evolutionary escape to a new order".*

It can be said that when we discover the steps and dynamics articulated in 'The Stairway to Heaven' in the cases we designed for with the design method of imagineering we presented in chapter 4, it can be said that this method is able to evoke organizational emergence.

Step 8: Strategic Direction towards more relevance for society at large
The fact that the imagineering strategy is oriented towards a field of relevant value creation for society at large makes this orientation a never ending story of positivity and constructiveness, a process that, just like for example the construct of Wikipedia, will never be fully finished. This, of course, raises questions on the amount of years that such a strategy might be effective. It raises questions on the sustainability of the strategic design but just like all other human designs, it can be expected that a strategic design will have a timely effectiveness in a specific context.

5.5 Chapter summary

This chapter described the research methodology and research design which is used in this study to evaluate the effectiveness of the design method of imagineering.

As our objective is to build knowledge that is both academically valuable and helpful in practice, we first explicated our epistemological stance as the turn towards complexity and design in relation to the social sciences asks for rethinking central research concepts such as rigour and relevance. This showed us that the much debated gap between research and practice is bridgeable 'in context'; It showed us that it is possible to develop prescriptive knowledge by conducting problem-focused research in the context of a whole research program as the essential approach to understand causality (to evaluate effectiveness) asks for comparison of cases.

Then we explained how effectiveness of the method can be evaluated using as well the complexity approach focussing on recognizing dynamics and patterns as using the conventional approach focussing on 'measuring' satisfaction, attractiveness in the labour market, turnover and organizational climate in general (in which work engagement).

Finally we presented the research design of this study: introducing the cases that are central in this study and explaining how data are constructed, analysed, validated and presented along the complexity-based 'Stairway to Heaven' that we developed in previous chapter and in which patterns and dynamics are integrated. Together with the insights on 'measuring' effectiveness the conventional way, this model is central in our next chapter in which we present and evaluate our findings.

6 Application and evaluation of the imagineering design method for revitalizing the City of Antwerp and the oldest Belgian retail-chain, Veritas

Abstract

In this chapter the design method of imagineering is evaluated on its effectiveness as it was applied in two natural cases some 8 and 9 years ago: the City of Antwerp and the oldest Belgian retail-chain, Veritas.

In both cases process tracing (process induction and pattern matching) and cross case comparison have been used to study the effectiveness of the design method as to find out 'what' actually 'works' by comparing them also to other case materials. The findings of the two central cases are presented along the steps of the complexity-based model of the 'Stairway to Heaven' integrating both steps and dynamics. The chapter finishes with a discussion and conclusion on the effectiveness of the method in the cases considered.

When the artists and sculptors I know work, there's a sort of free play idea. You try things; you experiment. It's kind of naive and childish, it's like kids in a playpen. Scientists work that way too—for example genetic scientists that I have been involved with seem to work similarly. It's kind of like throwing things out and then following the ideas, rather than predicting where you're going to go.

Frank O, Gehry

6.1 Introduction

In this chapter, early, original work on designing for organizational emergence is used to evaluate the design method. In every case we will first illustrate shortly how the design method has been applied at the moment of the intervention some ten years ago and we then presented the findings of the 'coherent conversations' we had recently. We analysed the 'coherent conversations' we had with involved strategists (as they are seen as most knowledgeable about the eventual emerging process and the role of the strategic design in this evolution) using fractal narrative analysis and attractor narrative analysis and pattern matching (the dynamics of dissipative structures) to trace the processes, patterns and dynamics and we present our findings along the 8 steps of the complexity-based model of the 'Stairways to Heaven'. (The original analysis of the coherent conversations can be found in Dutch in the attachment.)

To strengthen our argument we further execute a cross case comparison in a reflexive way, using other experiments we were involved with and evaluate them along the lines of that same model. So, in the following sections, steps proposed by the design method are alternated with findings from natural experiments carried out in the previous decade followed by a discussion and a summary of the chapter.

The key question guiding this research was, in what way can the realised organization transformation, or even better: the realised organizational emergence, be attributed to the applied design method?

We first introduce our case-material.

6.2 Introduction of the case-material

We first introduce our main cases: the natural experiments of the city of Antwerp (a governmental context of application) and of the oldest Belgian retail-chain: Veritas. To compare both cases we introduce also other case-material we were involved with.

6.2.1 The City of Antwerp

Situation in 2004
Antwerp is a harbour city in the North of Belgium and it is with its 500.000 inhabitants, the second biggest city of the country. At the end of the 20th century Antwerp was a poor city with lots of problems: a steadily growing crime problem and a trend of decline in satisfaction of the inhabitants, in entrepreneurial atmosphere and in

tourism figures. While being the second city in Europe on the amount of nationalities after Amsterdam, the city had an important multi-cultural problem which definitely catalysed the steady growth of extreme right represented by the political party called Vlaams Blok. In 2003 there was a very real threat that in the next election (2006) Vlaams Block 'should take over' from the socialist party.

For decades already the city had a socialist major and governmental institutions became associated with bureaucracy and bad behaviour of administrators which culminated at the end of the 20th century in what was called 'the Visa-crisis': highly positioned administrators had abused the Visa-card of the city. This resulted in a kind of tabula rasa in which the former female major, who was kept responsible for the mal behaviour of her managers, was replaced by a new coming socialist (younger) politician, Patrick Janssens, who had a background in academia and market research before working for ten years in the communication industry finally as Chairman BBDO/Belgium.

Under his guidance the city emerged in seven years time from a bureaucratic red, socialist bastion with which one tried to stay out of reach into an attractive and dynamic player with whom lots of stakeholders like to associate with at the moment. One of the first acts of this new major after his installation was the establishment of one central marketing department and the organization of a pitch for some major communication offices of the country as in Belgium these companies are used to be hired as strategic consultants too. It was the strategic communication agency LDV-Bates (with which the author of this research was working as an academic advisor of the Director Strategy at that very moment) that won the account of the city. The agency won the competition with a non-conventional approach: a design-approach based on complexity thinking while all other competing agencies presented a conventional change approach with all kind of workshops planned over several months.

Box 6.1 Former, official and new 'promotional' logo of the city of Antwerp

Former, official logo	New, 'promotional' logo with tagline: The city is from everybody
Stad Antwerpen	't Stad is van iedereen. A

Situation now (until the elections of 2012)

Appreciation by inhabitants

During the previous decade the satisfaction of the inhabitants has been steadily growing with seven percent. From an employer for which employees were ashamed of to work for, the city transformed into an employer that is able to attract the best people in their expertise, not by rewarding them highly financially but by offering them a job 'that makes sense' in an organization to be proud of. The city has become a highly appreciated stakeholder in value creation in the region and in the country as show the questions they get for co-creation.

Appreciation in B-2-B context

On top, in 2011, Antwerp won the FDI (Foreign Direct Investment) Financial Time Award for small cities from a list of 51 cities in the world proving that the external world appreciates Antwerp as a city attractive to invest in. It can be stated that an important group of stakeholders will agree with the fact that something transformational happened within the city. From an isolated bureaucratic entity with a bad reputation it emerged into a dynamic, constructive, creative and innovative entity which is highly regarded among citizens as well as external stakeholders even while financially the city is still a rather poor city.

Case selection

The case was chosen because of the fact that it revealed itself as a 'clear-cut success', an ideal situation for reflective research. It was obvious that in this case sustainable change was realised and that in a very early moment an emerging process of positivity, constructiveness and creativity was unleashed with a spirit that is still active today. It made such an impression in the country and even in the neighbouring countries that the agency and the people who worked on this case, got several comparable questions afterwards which were not always that successful as will become evident in this chapter. We will use this 'other' case material for cross case comparison reasons. On top, the fact that the intervention happened in 2004 made it possible to use a longitudinal perspective in capturing the organizational collective's emergence which isn't (as well) possible in more recent cases.

6.2.2 The Retail-chain Veritas

Situation in 2003

Veritas is the oldest retail chain in Belgium today. In 2003, for more than 100 years already (originated in 1892), Veritas has been the specialist in fashion accessories and sewing materials for the semi-professional seamstress. Started as a family-business it grew into a buying association, a cooperative association with 60 shops at the turn of the century. But its functional orientation in the fashion-industry connected no longer with globalisation trend in the fashion industry in which women can more

easily buy their clothes than make them from scratch. The functional orientation no longer fits with the emotional role that clothes play in today's society as statements of identity. In 2001 Marc Peeters became the new Director of the cooperation and he found the chain in very bad conditions. In his search for revitalising the chain he was searching in different directions: he asked Creneau, a global agency (head-office in Hasselt) that connects brands, interiors and consumers through design concepts, to make a new concept for the stores, he talked openly with the strategic communication agency LDV-Bates about the problems he encountered and he hired a new commercial Director Ingrid De Weerdt.

Based on the cooperation between the strategic communication agency and the author of this thesis, a cooperation that just took off at that very moment, the new commercial director of Veritas was invited for the first International Business Forum that Imagineering Academy organised at NHTV in Breda (under the lead of the author) in October 2003. Veritas was seen by the Strategic Agency as the first possible case for experimenting with the method of imagineering. On that conference several cases were presented that created value for society in a very participatory way and the method of imagineering was presented as an alternative method to co-create value in the network society by strategically evoking collective creativity. As a consequence of the impression the conference made on the commercial director, the author of this thesis was invited to present the method in the head-office in November 2003.

After the session at the head-office, plans with Creneau were temporarily set on hold and a whole strategic process started at the strategic communication agency, a process in which twenty core-people of Veritas were involved. It was a search process for vision, relevance and values that finally resulted in a value-booklet that later in the revitalising process was distributed to all employees of the company. The essence of this search process and the message of the book was the re-articulation of the business conception in the direction of co-creation and collective creativity: from being a deliverer of sewing-materials the company decided to be the inspirational force that enables people to make the finishing touch themselves. The logo was translated to function as a permanent invitation to change the enterprise logic by strategically evoking collective creativity.

Box 6.2 Former logo and new logo with strategic design of Veritas

Former logo *(Untill 2003)*	New logo *(From 2003 onwards)*
VERITAS®	veritas *Maak het verschil*
	veritas *Exprimez-vous*
	veritas *Express yourself*

Situation now

In the meantime the new enterprise logic has proved to be a significant success. Starting from the redesign of the business conception and its translation in a tag-line which was added to the logo to change the logic in the value creating network, several steps followed. The core competency of 'Inspiring the market in the field of creativity and self-expression' has been integrated centrally in the HRM-policy. The structure of the organization has been changed from a buying cooperative of individual shop-owners towards a retail-chain with a group-structure. The chain is growing steadily towards 100 shops now with more shops to come also abroad. The total turnover has tripled since 2003. On top the chain has been awarded two times in the previous years as being the 'Retailer of the Year' in Belgium (2008 and 2011).

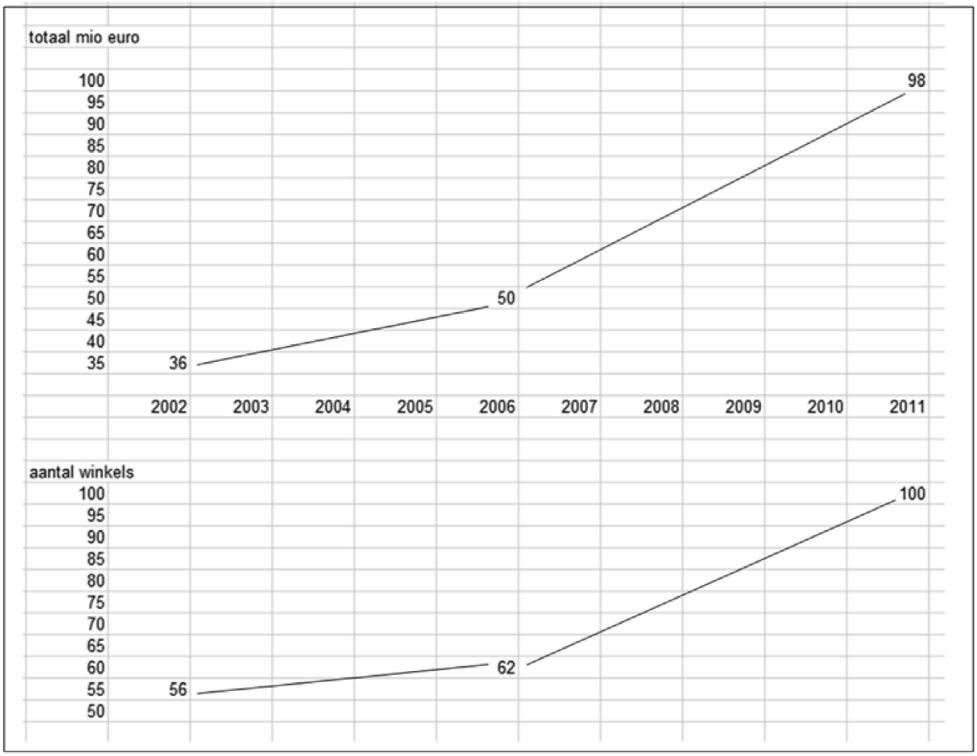


Figure 6.1 Growth Figures Veritas 2002-2011

Case selection

The case was chosen because it revealed itself as another 'clear-cut success', an other ideal situation for reflective research the more that in this case, complexity theory was explained (in a popular way) to the corporate stakeholders of the commercial company. Contrary to the previous case of Antwerp in which the artefact was the only 'intervention' and the process took off 'unconsciously', in the Veritas-case the intervention was more profound and articulated and the process is still going on in a very 'conscious way'. The whole design process itself was a matter of inspiration and co-creation with involved stakeholders and besides of the designed artefact, the whole concept of imagineering itself is a much debated concept in this company. The process of transformation is still evolving today. Recently two next steps have been conceptualized: the concept of the 'atelier' as a creative place located in the experience shops themselves and the concept of 'share' to role out the newly developed web shop and the activities online.

With regard to the baseline or tagline, the originally designed artefact of 'Make the difference/Express yourself' has been changed very recently as another strategic

communication agency was chosen for by the management. 'Make the difference' has been replaced by 'Details that matter' but it is not yet implemented online and in the stores and this shift was not yet effective at the moment of the interviews with the strategists.

6.2.3 Other case-material

As cross case comparison is the 'fundamental basis of the comparative method' (Byrne, 2011:135), we complement our findings with other relevant experiences. For Antwerp we will use other 'governmental' case-material (the City of Mechelen and the case of the two provinces) and for Veritas we will use other 'commercial' case-material (the case of a company that prefers to stay anonymous in this research and the experiences resulting from the North-project).

The City of Mechelen
The first 'governmental' case is the experience with the city of Mechelen, another Belgian city that asked a graphical designer to do a comparable job for the city of Mechelen. So, in a very comparable situation, also on the starting moment of a young new (liberal) mayor, a graphical designer was asked to do the 'magic' thing by redesigning the city-logo. The result was the opposite of what was expected: thousands of inhabitants reacted the day after the official launch with a facebook reaction: 'We don't need another logo'. At the moment the new logo is still in use but without the tagline: 'Het Lef van Mechelen'. On the internet one can find all kind of uses of the logo often with a cynical tone of voice.

The cases of the province of Noord-Brabant and the province of Antwerp
The second one is the case of two provinces, the province of Noord-Brabant, a province in the south of the Netherlands and the province of Antwerp, a province in the North of Belgium of which the city of Antwerp is the main city. These two provinces each organised a competition in previous years in which the author was both involved with, at both times in co-creation with a graphic designer. The first competition was won by another company and the second competition, the one of the Province of Antwerp, was won by the group in which the author of this study was involved with.

The case of the company that wants to stay anonymous
In January 2010, the company, a Dutch company with nearly 5000 employees, was firmly confronted with growing inter-activity in society. As a consequence of changing policy, the company got thousands of emails a week from their customers asking for the consequences of the changes in policy for their specific situation. These questions were so specific that only a few people in the company were able

to answer those mails. This made the company aware of the fact that this changing societal context asked for a transformation of the enterprise logic.
In this context it was decided that a group of young strategic managers should develop a strategy on how to transform the enterprise logic to be able to operate more aligned with today's interactive and co-creative logic. The author of this thesis was asked to coordinate this strategic process. It became a valuable experience to enrich the 'commercial' picture of this study.

The North project
Already three years on a row the author of this thesis is coordinating a collaborative research projects in which each year ten Dutch tourism and recreational companies such as Walibi Flevo but also smaller recreational companies such as 'Het Groene Eiland' are involved, again, trying to evolve the enterprise logic. Experiences in this collaborative research context are used to enrich the picture of the Veritas-case, the 'commercial picture', by cross-case comparison.

6.3 Evaluation of the application in the City of Antwerp

6.3.1 Application of the design method

In this paragraph we explain shortly how we applied the complexity-based design method. For a more practically detailed view we refer to the original strategy document attached to this study (see www.DianeNijs.com). We keep the text on 'our own perspective' short as the evaluation of the effectiveness depends only on the perception of the 'customers', in this study: the strategists with whom we did the coherent interviews.

Step 1: Inspiration: Discovering the field most relevant to co-create value
A-nalysis
Growing extreme right was a fact that dominated the image of the city in 2003. This is exactly the opposite of what city-thinkers, popular as well as academic, such as Landry (2006, 2007, 2008) and Florida (2002, 2005) at that same time suggested (and still suggest) for healthy cities: the ideal for cities in the knowledge economy is to become a creative city and creative cities are said to flourish mainly on the base of tolerance and diversity.

B-rooding
The slightest change that might have the biggest effect in rethinking value creation in the city is appealing to more openness and positivity in the micro-processes and to reframe in the meantime roles/relationships and relevance/responsibilities.

Step 2: Ideation: Designing the desired behavioural change in an imaginative narrative (imaginative tension)

C-reation

The vision that was opted for at the strategic communication agency LDV-Bates: Using communication in combination with the city logo to give the city back its 'we-feeling', making people proud again to be an inhabitant of the city of Antwerp and give them the feeling that 'we' matter and empower them as responsible citizens. "Wij zien de communicatie van de stad met haar burgers als een belangrijk bindmiddel. Wij willen bijdragen tot een positief wij-gevoel, een gevoel van samenhorigheid. Een gevoel van "Antwerpen, dat zijn wij" en daardoor bijdragen aan een positieve ontwikkeling van de stad" (See strategy document attached to this study).

D-esign
Instead of making a change-plan with workshops, the choice was made, based on insights from complexity science, to add a narrative to the new logo to reframe the identity and its value creating logic. A small text was designed 'that has it all: the hooks, the looks and the books' and that has the potential to change 'the dialogue' in a more wanted direction, the direction of an open-minded, creative city.

A strategy document is made to explain the vision of the strategic communication agency on values and evolution of the artefact and its use and to give an indication on the possible emerging process (see attachment).

Step 3: Implementation: manage the dynamics of dissipative structures (imaginative emergence)
Experiential platform
In the strategy document (under C. Communication projects) it is suggested how the strategic designed concept should be used in all kind of touch-points with stakeholders.

Follow-up
There is also a suggestion about following 'chapters' to keep the 'magic' come alive and how to keep the imaginative tension high to keep the process going on for many years.

It is important to mention that the design work was based on our (at that time basic) insights of complexity science but that this academic insights were never articulated to the customer. All other agencies that competed in the competition presented a change plan (based on workshops which would take at least several months in order to result in a general accepted brand design) as will become evident in the analysis of the coherent conversations we had with the strategists working with the city (see attachment).

6.3.2 Presentation of the findings

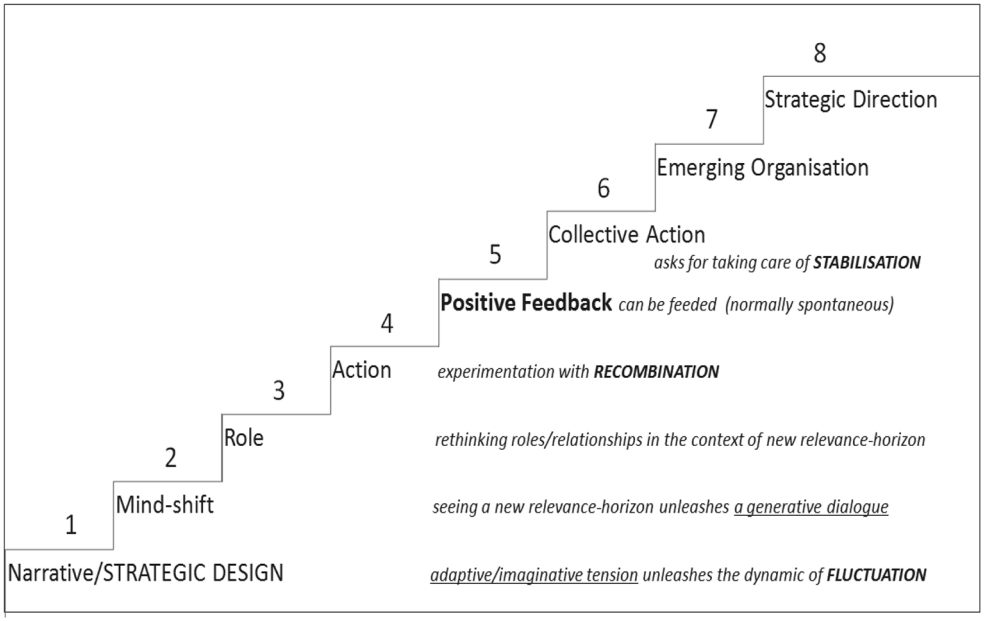
We present the findings which are based on the coherent conversations (see attachment) along the steps and dynamics integrated in our conceptual model. First we implement the steps using as much as possible citations literally from the interviewees. In a second step we do the same while discovering the dynamics of the emerging process.

6.3.2.1 Implementation of the steps based on process induction

Step 1: The designed narrative (strategic design)
In 2004 Antwerp found itself in a downward spiral of negativism, cynicism and bureaucracy which culminated for the inhabitants and administrators in what they called 'the VISA-crisis' while in the midst of this negative downward spiral highly positioned managers abused the Visa-card of the city for private reasons. Because of this abuse the sitting female socialist mayor was replaced by a younger male socialist mayor who had a back-ground in communication being the CEO of one of the biggest advertising agencies in Belgium at that moment.

From his perspective of communication, the mayor analysed the situation and revealed the general fragmentation as the biggest problem of the city: policy was fragmented (there was no clear future direction) and structures were fragmented: every department had its own communication budget, its own logo and its own PR-agency. A we-feeling was missing as was a feeling of community. Dominating was the idea 'We are doing well in our department but the city, the city is a big problem. Therefore he organised a competition between the biggest advertising agencies of the country as in Belgium it is common use to hire this kind of agencies for strategic work.

Five agencies were involved in the competition and four of them presented a conventional change trajectory with workshops with all kind of stakeholders in order to solve the fragmentation problem. There was only one agency that presented a non-conventional approach, an approach based on complexity thinking. They delivered a communication 'solution' instead of a change plan. It presented a new logo, a logo with a tagline in the narrative mode: a subjective text integrated in the identity of the organization, using the logo to reframe the logic. Even while there were cities and countries using taglines from a marketing perspective, it was definitely not common to use the logo for organization development purposes.



The mayor with his communication background however, decided in an authoritarian way to introduce the logo quickly and to use it as a promotional logo besides of the official logo as to prevent that he had to bring it in the official lines of decision. He decided to 'brand' everything as to make visible whatever the city does for the inhabitants. This whole operation was fixed in four months in a way that at the new-year reception, inhabitants were impressed by the fast change and happy with the proud and positive expression. On top they got branded merchandise for free (for example gloves) on the reception from the city mayor which effectuated that the inhabitants that visited the reception saw themselves as the first ambassadors of the new spirit.

Embracing the new logo with the integrated subjective statement was a major thing to do as it reframes the identity of the city, an identity that has to be made come true. It reveals the intention of making the city everybody's responsibility. It also prevents stakeholders from questioning the choice for change and it also prevents them from going back to the former situation of fragmentation and intolerance.

Besides of being integrated in the identity, the artefact causes an adoptive/imaginative tension towards the more wanted enterprise logic by effectuating two orientations:

Box 6.3 Explanation of the strategic design of the city of Antwerp

''t Stad is van iedereen'	**'A'**
'The' city is from everybody, articulated in Antwerp-dialect: for people from Antwerp there is only one city and that is their city. Therefore the logo says 'the' city. 'From' everybody invites for interpretation and for feeling co-responsible for what happens in and with the city.	Besides of being the first letter of the name of the city, 'A' is also Antwerp dialect for 'you'. This double layer makes it possible to make all kind of combinations with 'A': I want to dance with 'A', I want to sport with 'A' and so on.

Relevance orientation:
It orients all stakeholders to more tolerance and openness which is essential to become a more creative city.

Relational orientation:
It invites all stakeholders to participate in value creation. It invites them to reconsider their role from passive inhabitant to active creator of value.

The articulation in the narrative mode has heuristic and holistic effects. To say it with the words of one interviewee: 'Everyone can see something else in it and that is definitely the strength and the intention of the message. But one thing is sure: it will be something constructive. It definitely tells you that you are part of the warm community called 'the city'. And also: 'The logo is great in all it's simplicity. It's purely poetic as had said the mayor when he first saw the new logo in the context of the competition'.

Step 2: Mind-shift
The narrative 'openness' of the strategic design causes an imaginative tension in the first place for the administrators and politicians of the city. It gives them a new window through which they can see a new, more meaningful collective horizon of acting. Integrated in the logo it acts as a message that asks for implementation. One interviewee articulated the integration of the message in the logo as follows: "From now on, we speak with one voice of hope. We are together in this and we are all as

responsible for what we make out of it." The message is a starting point for all that happens in the city and in all assessments it is the starting point of the interview asking from all employees to think over the meaning of the narrative for their own functioning.

The employees see themselves no longer as people that plant trees, clean streets, design new buildings or organise events but they see themselves as people that plant trees that should be for everyone, they clean streets and keep streets clean because the streets are from everyone and that they design buildings that should be accessible for everyone (The building of the new Museum (MAS), for example, is accessible freely for everyone, only when one wants to visit the museum which is located at the inner core of the building, one has to pay.). When they organise events, these events are for everyone which means, for example, that there is no longer VIP-treatment in events of the city of Antwerp.

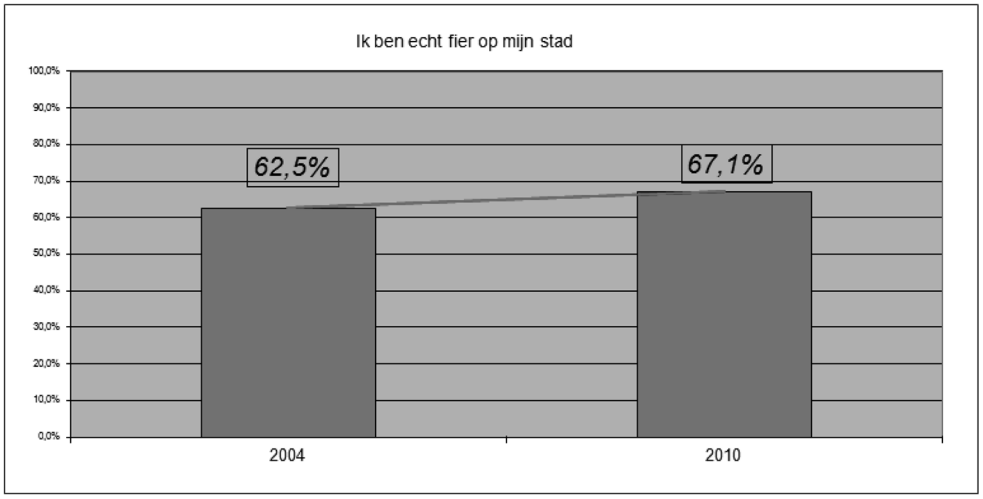


Figure 6.2 Growth of 5% in 'proudness of the city' in Antwerp between 2004 and 2010

Was the previous management good in making promises, today's government was taking care of constructing a real dialogue and transparent, consequent acting. And the good thing was that because of the Visa-crisis, there was a big sense of urgency to make things change and to become an effective government. "If there had not been a fertile soil in administration, one could never have realised such a transformation. In that case the mayor could have thought of changing things but other people in the organization should have taken things slowly." Now there was a mayor aiming to change things for the better and there was an administration willing to make change come true. But as one interviewee mentioned: 'I don't think that

the transformation could have happen without the logo but it couldn't have happen without the sentence in it either. On its own the icon should have been seen as a kind of Warhol-thing and with the sentence next to it, everything was clear. It needed no further explanation, the direction was obvious for all stakeholders. Both were needed to effectuate the transformation. The logo catalysed us away from negativism and bureaucracy into positivism and openness. Gone were the stories of us and them, the bad guys and the good guys. From now on, it was all about 'us'. There was a significant growth of proudness and an even bigger decline of negativity.

Step 3: Re-thinking role/relationships

Employees start to rethink their role in their daily interactions and activities. But also the midfield players started to rethink their role. The fact that the new identity frame says that the city is from everybody, awakened the midfield players about their role in and for the city. Clubs such as Opsinjoor, an association that takes care for giving subsidies to initiatives of citizens that are oriented towards social cohesion, grew tremendously. From 700 midfield players that came to listen to the yearly speech of the mayor there were 1800 people after the launch of the new logo/identity frame. 'The new logo really worked as a catalyser'.

Step 4: Action – Changing routines

For strategists the baseline or tagline, that one sentence that is essential in reframing the identity and central purpose, now functions as a daily point of reference which makes it possible to make decisions that one knows will be affirmed by the colleagues. It generates a positive spiral of synergetic effects which makes the city stronger and more coherent. 'We realise that we are together in this and that together we build this city'. But the baseline also affects other employees. Now, more than ever, people care about how they do their job while they are proud to be a member of the community of the city workers.

But also citizens change behaviour: Now people like to participate. 'If we now want people to act, the participation is enormous. As for example in the action to lower speed in the city centre, in every street, on every corner, you saw the personalised messages from people participating in the action and not just the people living in the centre but also in neighbouring centres, people started to participate'. People now feel responsible, feel empowered. They like to think positive and constructive with us, while 'we were used to negative reactions'.

Box 6.4 Inhabitants participate in value creation

The same happens with companies: they ask the city for allowing them to use the new promotional logo with tagline on their mail, on there website. They are queuing to co-create events and actions with the city and the city is willing to co-create as long as it is good for everybody and of course 'we have to keep an eye on the quality as keeping the quality high is keeping the evolution sustainable on the longer term. In the past, companies didn't even think about co-operation with the city as the city was associated with bureaucracy and abuse. Now it is remarkable how many inter-departmental meetings there are and how many meetings there are with internal as well as external stakeholders to realise all kind of new initiatives. It seems as if the logo opened the creativity of many people'.

Step 5: Positive feedback
Today the city is able to interest the best qualified people in their expertise, not by remunerating them highly but by being an employer that has a great reputation of making sense for many people. The city has built a dynamic reputation of action-ability which is definitely remarkable for a city and definitely for a city with a history of bureaucracy and abuse.

Today administrators and politicians get lots of mails of people who think they should warn the city when things seem to go wrong, not because they want to complain but because they feel responsible for the great things the city offers to them and because they want to keep the city the way it is now.

The proud of the citizens is everywhere as stickers are put on doors and cars. This has also been stimulated in the beginning: In 2005 250.000 stickers and bracelets mentioning 'Zot van A' ('crazy about you') were spread by the government and are still looked after today while people are, even after so many years, willing to show their enthusiasm about the city and about being a member of this community.

Even while the city is spending less in the direction of communication, citizens have more than ever the feeling that the government is communicating with them.

Step 6: Collective action
The integration of the narrative in the logo as an identity frame, makes change a collective action and the fact that the message is a positive one, propels the collective action. Employees see the effect of the collective constructive actions and are proud and engaged to be able to participate in this positive sense-making movement.

In the meantime all co-creation activities and branded actions of the city have become so dominant that some organisers now start to perceive it as too strong a movement. They make the remark that when one organises something without the involvement and the use of the logo of the city, one takes the risk to be 'invisible'.

Step 7: Emerging organization
Besides of the steps that are clearly recognisable in the process and in which the strategic design definitely played an important role, we have to look whether the dynamics of dissipative structures are recognisable in the transformational process. This is the subject of next paragraph.

Step 8: Strategic direction towards more relevance for society at large
In the previous decade the city definitely evolved into the direction of a more open and tolerant city. But strategy is about making choices and choosing for one direction is not choosing for another one. Even while the orientation towards openness is still relevant and even while there is definitely still more relevance to built in that strategic direction, other directions ask for attention too such as sustainability and internationalisation.

In the field of sustainability it is clear that other cities, in which Scandinavian cities and German cities, definitely are running ahead of Antwerp. Today's strategic design is not really pointing in this direction as it has predominantly a social scope. Also, today's artefact is articulated in Flemish which makes it less suitable for an international strategic choice.

6.3.2.2 Implementation of the dynamics based on Pattern Matching

(Process verification with the dynamics of dissipative structures)
We complement the exploration of our data through induction, with a process of verification using the theoretical model of dissipative structures which has been articulated and verified several times (also in organizational settings) as underlying processes of emergence. This way we cycle between induction and deduction and link both processes to one another in the 'Stairway' to make the process 'manageable'.

The dissipative structures model of emergent self-organization predicts and explains a pattern of emergence, a periodic transformation to a qualitatively new way of operating. The model features four primary dynamics (as explained in chapter 3): fluctuation, positive feedback, stabilization and recombination.

Tabel 6.1 Implementation of the four dynamics of dissipative structures in the city of Antwerp

Four Dynamics of Dissipative Structures	Specific instruments
Fluctuation Dynamics	The Visa-crisis A new major A new logo/logic The five A-values
Positive Feedback Dynamics	'Zot van A'-sticker and other gadgets Locals calling the city Entrepreneurial activities in joining the movement Employees doing their work in a proud way
Stabilization Dynamics	A-values The co-creation Agency 'De Nieuwe Antwerpenaar' and other comm. Instr. Communicating positively in all situations
Re-Combination Dynamics	- All kind of new combinations were made with the 'A' (the first part of the new logo) to articulate all kind of invitations for participation by the city government - All kind of co-creation initiatives were developed between the city government and all kind of other stakeholders in the city.

Seen through the framework of this model, the transformation of Antwerp evolves as a process initiated and periodically re-initiated by 'next chapters', fluctuations that synergetic transform the system qualitatively in the direction of a new regime of order in a few years time: From the exchange mode of the bureaucratic governmental silo-logic of exchange towards the emerging logic of value co-creation gaining momentum through numerous positive feedback loops, elements we will explain more in detail below. The artefact (and the direction of behaviour it appeals to) together with the formulated A-values and criteria for co-creation provided stability throughout that evolution. And entrepreneurial actions continually recombined existing resources, to create new interpretations and 'chapters' that fuelled positive feedback processes, generated variety and held the potential to initiate new order.

As the process of emergence is still going on, it is impossible to give a complete picture of all specific instruments that materialize the four dynamics but we illustrate them with the most obvious ones as summarized in the table below.

Fluctuation dynamics

– Order through fluctuation: At the turn of the century, four simple elements: the visa-crisis, a new major and a new logo followed by the articulation of 5 A-values, catalysed a transformation of an unthinkable negative and racist situation in a very constructive, positive and tolerant situation and image for the city.

– *The visa-crisis*: The city found itself in a very depressing situation metaphorically summarized and culminated in 'the Visa-crisis': Highly positioned managers of the city council had abused their visa-card for personal issues. In previous decades the city had taken a turn for the worse and the 'Visa-crisis' offered a major and simple name for inhabitants to refer to that very bad situation. It referred and still refers to the very hierarchical silo-mentality of governmental bureaucracy permeated by abuse and selfishness.

– *A new major:* The fact that the elected female major (already the major for eight years and who herself was a daughter of a former major of Antwerp) was replaced by a new major (on July 10, 2003, not in the context of a 'regular' election) with a background outside politics, in communication, was a major signal to the inhabitants that (coming from the same socialist party) a real shift in political mentality was to be expected. One of the remarkable characteristics of the change in politics that this major brought was the continuous positive framing of thinking and also communicating. The major communicated consequently that he thought in positive, forward frames of thinking instead of relying on negative problem analysis.

– *A new logo:* a few months after his appointment the new major organised a pitch for a new corporate communication approach which had to bring unity in a fragmented government that was divided in many ways. All communication agencies brought a change programme on the table and one company, LDV-Bates, brought a solution on the table which was immediately embraced by the major and implemented in four months time in a rather authoritarian way. The logo was said to be the promotional logo of the city instead of the official logo and it contained the text: The city is from everyone. In Flemish the word 'a' has a double meaning while it is as well the first letter of the city as the dialect for 'you'. It is a narrative that invites for a more tolerant and responsible behaviour of the inhabitants. It also made the city visible from one day to the other as it was used as a signature on all material entities such as buildings, cars, flags, boards and so on. At once the inhabitants became aware of all the things the city does for them and what is not the responsibility of the city.

– *The five A-values:* in 2005, aligned with the A from Antwerp, 5 a-values were articulated soon after the introduction of the new logo and these values are central in the functioning of all employees from the city: The 5 A-values are: Klantgerichtheid (orientation on the customer), samenwerken (cooperation), kostenbewustzijn (cost awareness), omgang met diversiteit (agency in relation to diversity) en integriteit (integrity). New employees are trained on these values and all employees have these values as a central focus point in their assessment interviews.

Positive feedback dynamic

– *Spreading the 'Zot van A'-sticker*: As more people were happy with the new signal, more people were willing to show that they were embracing the positive, collective motion of tolerance and responsibility proving this by putting the sticker on their front door or even on their car. The more people engage themselves in the movement, the more also entrepreneurs and other stakeholders start to think about how they are able to join the movement in a constructive way. It is a feedback loop that involves 'reciprocal conditioning'. It is a self reifying process. In order to enable people to engage freely in the movement, some 500.000 stickers of 'Zot van A' were distributed. Besides of this free merchandise, other merchandise such as bracelets, T-shirts and caps became very successful and are even successful attributes at this very moment.

The self-reinforcing cycle brought more people to join the movement and it stimulated as well social as business entrepreneurs to think creatively about how they could join the movement which resulted in growing diversity and growing visibility. It created a movement that was not planned or controlled or orchestrated and soon after the start, the City had to install an agency to handle all questions from entrepreneurs that where willing to use the logo for all kind of actions and activities. Creativity inspires creativity and so a whole process of co-creation started that had to be orchestrated to keep the whole process of emergence for the city on the much wanted quality level. This phenomenon is consistent with the argument that "dissipative structures can operate in a state of ongoing disequilibrium without ever being in equilibrium" (Smith and Gemmill 1991 in Chiles et al. 2004:510). Even while the process was initiated as it already featured in the strategy document the strategic communication agency delivered in the pitch (see attachment……), it was never expected that it should initiate such a spectacular process of self-organization that had to be orchestrated by the city government and especially by the agency that was founded to take care of all co-design activities.

Also in other situations such as governmental situations, co-design with the City of Antwerp was embraced as Antwerp administrators had a solution oriented approach and were perceived as very constructive and positive stakeholders. The city was able to attract employees with great expertise in there respective fields and

from this, co-design with the city became an even more interesting thing to do while the success-rate is high, contrary to the perception of working with the government in general as this is mostly perceived as being slow and bureaucratic. That way, different positive feedback loops with different stakeholders emerged resulting in a very entrepreneurial city that is perceived by external stakeholders as an interesting big community that is alive and in good shape for investment and co-design in general. The movement emerged into the fields of sport, culture, entertainment, business and all other kind of fields and activities. They emerged far from equilibrium and the process still continues today as for example recently inhabitants around the region called 'het eilandje' ('the little isle') are grouping themselves to safeguard their interests under the fancy name of the 'A-landers', showing that community participation still emerges creatively in directions and forms which it was never intended to do. It also reinforces the argument of Smith and Gemmill (1991) that dissipative structures do not have to seek equilibrium.

Stabilization dynamics

– *The A-Values*: With the abuse of the Visa-card in mind and the replacement of the major as a signal of introducing a new culture, in 2005 the A-values were defined and implemented. First these five central values that have to be central in all employees' behaviour were not called the A-values. But while some departments started to add specific work-related values which they called the B-values (from the Dutch word 'bedrijfs specifieke waarden'), one started to call the central values the A-values. The A-values provided a powerful and stabilizing mechanism that shaped the organization culture on the longer term as all new employees were selected with these values in mind and as all new employees get a training at the beginning of their working career with the city, right on these values. These values are also a starting point in all performance interviews. In these interviews it is asked how an individual employee applies these values in his or her work and how he or she thinks to evolve in the development of these values. It is also asked how 'the city is from everybody' is implemented in the own activities.

As a consequence of the problematic past and its iconic point of reference, the A-values became a strong shared scheme providing an internal point of reference that preserved identity and core behaviour patterns that strengthen the organizational culture in the direction of a strong, dynamic and constructive stable system (Stacey, 1996). As these core values are embodied in the first place by major, directors and managers, they shaped the culture of the organization in the new direction and again this is a self-reifying process as this culture attracts new employees that already embrace these values and it attracts stakeholders for co-creation who are willing to associate with this culture.

– *The agency that evaluates co-creation initiatives:* with the fact that stakeholders started to ask for co-creation with the city, the city had to install an agency to evaluate these questions. This agency also reacts when against 'free' use of the artefact as for example the province of Limburg was trying to market it self to 'A', therefore making use of 'A' which is not allowed.

– *De Nieuwe Antwerpenaar (DNA)*: Another instrument that stabilized this new culture of positivity and integrity is the magazine DNA which translates the A-values in the communication performance with the citizens. The topics that feature the magazine as well the style of communication in the magazine is consistent with the values of customer-orientation, integrity, diversity, cooperation and cost-awareness. The fact that the city took the magazine again in its own hands made it possible to bring policy in the daily live of inhabitants in a very simple and consistent way with lots of possibilities for people to react and dialogue. This helped in infusing the broader context of the city with the culture of the A-values.

– *Communicating positively in general*: As the major had a background in communication, he was from the beginning very consequent in influencing the communication from and about the city in a positive way always thinking in solutions instead of problems. These communication initiatives helped in changing the perception from the city being a problem towards the city being an attractive place to live. It also helped in stabilizing the new order of tolerance, openness, responsibility and co-creation.

Recombination dynamics

Existing elements are often re-combined in new ways in self-organising systems. In the case of Antwerp we discover two broad ways that show the self-organizing dynamic: recombination by the government itself and recombination between the government and non-governmental stakeholders.

Recombination by the government

The 'A' (first part of the logo) is often used in all kind of new combinations to articulate invitations as for example:

– I want to dance with 'A', I want to sport with 'A' and many combinations more: Existing as well as new events are organised with that same new positive dynamic associated with the new logo and most of these activities have a very inspiring effect on participation and co-creation, as well in the cultural sector as in the sport sector as in several other leisure settings such as 'The summer of Antwerp' and the leisure card 'Goesting in A' which is a card that offers poor people also the opportunity to participate in regular leisure activities against a

reduced price without other participants recognising the fact that they are poor and got a favourable cost.

But also in more subjective cases such as 'The sorrow is of 'A'', an action started by inhabitants on a moment that a woman was killed in one street, the city allowed the inhabitants to use the logo to express their sorrow in a collective context. All these initiatives are a signal of the growing movement and have synergetic effects on stimulating participation and responsibility in the city.

Recombination between the government and non-governmental stakeholders

- Events are organised under the umbrella of 'A':
  Even when most stakeholders are enthusiast about the dynamic image of the city, some organisers start to complain about the dominance of the image in the city. Co-creation with the city sometimes doesn't seem to be an option any longer as not having the logo makes your event less visible.
- Commercial actions are organised in co-creation with the government:
  One more example: a coffee-action which is organised with a coffee-brand from which the return for the city is free coffee for (poor) people in Antwerp. As mentioned, commercial actors are said to be 'queuing' to co-create with the government as the city realised to be perceived as a quality label.

Recombination is also important to renew the adaptive/imaginative tension regularly as 'magic' is not timeless. It disappears if it is not renewed regularly. Magic needs new chapters or new 'books' to be sustainable.

6.3.3 Cross Case Comparison in 'governmental' experiments

As already mentioned before: as cross case comparison is the 'fundamental basis of the comparative method' (Byrne, 2011:135), we want to complement our findings in the case of Antwerp with two experiences which are relevant in this context: the first one is the experience with the city of Mechelen, another Belgian city, and the second one are the cases of the two provinces. The two provinces involved are the Province of Noord-Brabant, a province in the south of the Netherlands, and the Province of Antwerp, a province in the North of Belgium.

6.3.3.1 The case of the City of Mechelen

We used the case-material of the city of Mechelen in the coherent conversations with the strategists of the city of Antwerp while Mechelen recently intentionally tried to copy the example of Antwerp. It is important to mention that we did not use this material as a source of 'evidence' but as a dialogical devise to explore theoretical

positions and practical applications. We only used material the way it is publicly available on the internet.

The assignment

In trying to copy the process of Antwerp a graphical designer was asked to design a new logo for the city of Mechelen. In this case the graphical designer worked on his own without strategical or organizational design assistance as is most often the case in assigments for new logo's. The narrative the agency come up with was 'Het Lef van Mechelen', translated: 'The Daring mentality of Malin'.

Box 6.5 Illustrative material of the case of the city of Mechelen

Former, official logo	New, official logo with tagline	Persiflage on new logo
		
	Use (or 'abuse'?) of the 'material' in the city of Brussels. 	The alternative made for reflection during the coherent interviews 'Mensen Maken Mechelen'

The effect

The effect was remarkable but not in the expected way. The new logo was launched officially with an event on the market place and immediately after, a 'face-book reaction' emerged with some three thousand inhabitants reacting that they didn't need another logo. Clearly the new logo 'Het Lef van Mechelen', was not the constructive strategic design that evoked an adaptive tension (reframing roles/relationships and relevance/responsibilities) in a more desired direction. It didn't evoke the adaptive/imaginative tension as known from Antwerp but, on the contrary, it evoked a cynical reaction in the opposite direction: it made people react collectively against the new logo.

This reaction reveals that people feel involved with the logo of the city and the logo has the potential to enable this involvement to act in a constructive direction and, if not, people will re-act. Besides of the immediate Facebook-reaction, the material is

now sometimes 'abused' as well in the own city as shows for example the persiflage which is a cynical expression as the new, official logo points in the direction of a crown, but it is also abused in other situations as shows the photo material used by a museum in the city of Brussels. Apparently the city of Mechelen is not monitoring the use of the (elements) of the logo.

Analysing the material of the interviews we did in Antwerp on the strategic design of the city of Mechelen along the steps of 'The Stairway to Heaven' leads us to following insights:

Step 1: The designed narrative (strategic design) causes imaginative tension
"What you can see in this logo is that it is great geographical work but that it is missing the characteristics of a narrative that can function as an adaptive tension engine, able to orchestrate processes in a strategic envisioned direction. What it misses is a vision on the process of living together and making something out of it. It does not say what the individual can do for the collective. It can't function as a touchstone in day-to-day decision making." It misses the tension which makes the collective move in a more wanted direction.

The artefact should cause an adoptive/imaginative tension aligned with the three orientations:

Relevance orientation:
It orients all stakeholders to a more 'daring' mentality but it is not clear what field of relevance the stakeholders can build with this 'daring' mentality, it is not clear what a kind of city this can result in. This is definitely the case while Mechelen has quite some problems with 'fighting' and multicultural problems. A 'daring' is not per definition something 'positive'.

Relational orientation:
It does not invite stakeholders to participate in value creation. It does not invite them to reconsider their role from passive inhabitants to active creators of value. On the contrary: it tells something from the government. It is a one-direction statement which is not perceived as an invitation to change behaviour in a constructive direction. And also the process of the introduction was an illustration of the one-direction mentality: it was officially launched with an event on the market place as another 'fact' to archive, not as a starting process.

Narrative mode:
"One can see the crown of Margarita in this logo which is the symbol of the ivory tower". The fact that the new, young mayor is from the liberal party might have influenced this quote and the colours. The choice for blue and purple refer to the

liberal colours but the original colours of Mechelen (and of their football team) are red and yellow. So, people don't recognise themselves in these colours and also, the colours are 'cold'. By making this choice of colours, the logo seems to brake with the past. It seems to deny the origin of the community.

The persiflage shows the spontaneous evoked direction: 'The daring mentality' as a narrative, associates in an aggressive direction which is not the direction constructive people prefer for their city. So, the logo does not enable constructive people to act upon it. On the contrary, it makes people react and act cynical.

Step 2: Mind-shift and following steps
People don't see a new horizon of possibilities for action which enables the citizens to co-create value in a more desirable direction. So, it does not cause an imaginative tension which inhibits the following steps to take place. There won't be a rethinking of roles, not with employees and neither with other stakeholders, no changing behaviour, no positive feedback, no feeling of collective action and, as a consequence, no emerging organization while self-organization is not enabled.

The alternative made for reflection during the coherent interviews
To deepen the insights in the coherent interviews and to explore 'The Stairway to Heaven' for Mechelen, we did a test. Pro forma, we designed a strategic narrative based on the principles to design for imaginative tension. We didn't do a deep search for the field the most generative for Mechelen but we made it purely based on the three criteria for realising an adaptive tension. Even more: we only did the organizational strategic design and did not use the possible synergetic effects graphical design can realise. We designed:

'Mensen Maken Mechelen'

In English: 'People make Malin', which in Dutch alliterates as can be seen from the first letters of the words.

As already mentioned we used this design as a dialogical devise in the coherent conversations with the strategists in the city of Antwerp. The fractals on which the following analysis is based, can be read in the attachment. In our analysis we used as much as possible the 'words' of the respondents but, of course, we had to translate them for this text.

Step 1: The designed narrative (strategic design) causes imaginative tension
"It is a fact that nowadays cities try to make a fit between policy and communicated strategic image but they are seldom successful so far." Most images nowadays 'sell' the city in a context of competition or in a context of being cultural capital or being

Olympic City. These images are marketing images, they are meant to sell the city and not to build the city. These images have seldom the power to realise sustainable change.

There is this potential to use the baseline to evoke an emerging change process but this asks for a different implementation. "In Antwerp this was the case but, to keep the energy going", 'another' narrative is needed. It does not happen because there is a new mayor as this was also the case in Malin. The situation has to have everything: a sense of urgency, new people, new icons, and an effective construct. If all these things are in place, magic can happen. And then 'Mensen Maken Mechelen' can be an effective strategic narrative to keep the energy going. "I think this strategic artefact could work as a day-to-day touchstone which makes it possible that everybody is empowered to know how they do things in Malin. Definitely it would help me in for example organising sporting events, I would realise that the objective is to make it happen with many people involved."

Relevance orientation:
It orients all stakeholders to a more responsible behaviour. It empowers the constructive forces and people in the city. It redistributes power and responsibility and helps the city evolve in the network society.

Relational orientation:
It invites stakeholders to participate in value creation. It invites them to reconsider their role from passive inhabitant to active 'maker' of value.

Narrative mode:
It has the tone of voice of transparency and openness and the subjectivity of 'people' instead of the objectivity of 'infrastructure'. "The city are the people and not the stones, so, take your responsibility if you want something positive to happen."

Step 2: Mind-shift
There is a new opportunity horizon: we can make the city a better place by making it together. So, let's start. "As a professional in city planning, I think I should go to the next open meeting while I would think I could be of help to the sitting city planners".

Step 3: Re-thinking role/relationships
When this sentence is taken as a starting point in all assessment interviews, it becomes the touchstone of daily behaviour and daily action. It is a voice of hope and believes which empowers people in the difference they can make. Positivity propels action, so one can expect that also the following steps will happen: people will act different, they will try to realise that new horizon of opportunities, people will give

positive feedback which energizes most of the individual agents in joining the collective and as a consequence, this could result in an emerging organization.

This is a strategic design that might work but it could even be stronger when it has a true endogenous spirit, when it is oriented on a 'real' field of relevance for Malin, a field in which they could generate constructive power, strengthening the character of the city and solve their mayor problems in the meantime. So, definitely, the strategic job can be done better. The imaginative tension can be better oriented from a point of view of 'relevance' in the specific context of this city.

And also: "it is not just a matter of a logo, it is a matter of logic and as such the people involved and the values (you could think of the M-values but they have to be made by the management themselves as they have to live them in an exemplary way), all have to be aligned and implemented consistent and coherent. It is too easy to think of it as a matter of copy-paste, but it is true, I think it can be done and then magic can happen".

"I also think that the process matters. This doesn't sound very democratic but I don't think that this should be open for discussion. I think it has to be made by experts and introduced and implemented in an authoritarian way. But then afterwards it should be a very open, creative process. The process should first be top-down and then afterwards, bottom-up".

6.3.3.2 The cases of the two Provinces

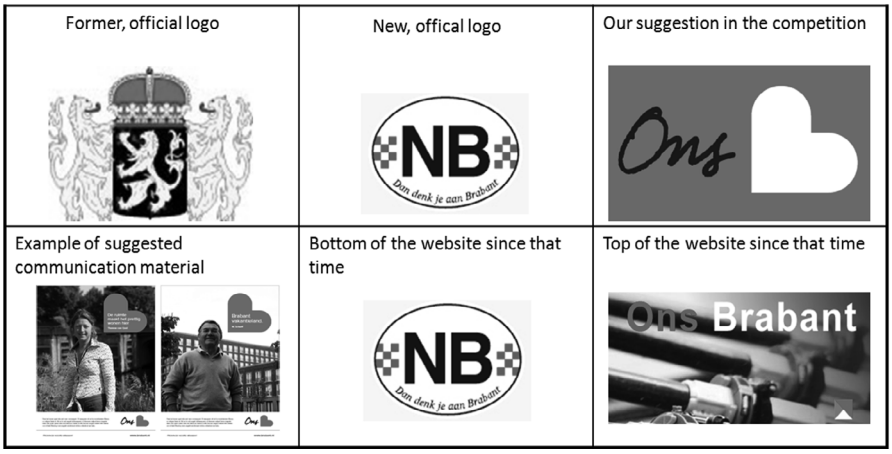
Apart from the case of Mechelen which we discussed in the coherent conversations with the strategists of the city of Antwerp, the author of this study participated in two other pitches/competitions comparable to the one of the city of Antwerp which have relevance in this context as they enrich the information of this chapter from a cross case comparison point of view. The first competition (2008) was won by another agency, the second one (2012) was won by the graphical design agency with whom the author of this study participated.

Problem and approach in the case of Noord-Brabant (NL)
In the case of the Province of Noord-Brabant, a province in the south of the Netherlands, the question was to develop a new brand for the Province using a process of change management. So, the question was to develop a process with workshops in which lots of important stakeholders should participate. The whole process should change the silo-image and give stakeholders the feeling that their voice is important for the province. It was a clear question for a process.

Even while the province was asking for a process, we were convinced to compete with our proven approach and we decided to make our complexity-vision on change clear during the presentation which is always a part of a competition. The same approach was used as in the case of the city of Antwerp: while there was a question for a change approach as to make the province more coherent and visible, the choice was made to participate in the competition with a non-conventional approach based on complexity thinking, delivering a 'finished' artefact, a narrative that was ready to implement and that should result in self-organization in an emerging way by evoking collective creativity.

The design resulted in a dialectic much used quote 'Ons Brabant' which could later be followed by all kind of new combinations to orchestrate 'action' such as 'Ons Brabant fietst', 'Ons Brabant danst', 'Ons Brabant zingt'. Graphically the B of Brabant was translated in a heart as to make it very simple and appealing to be part of a great collective.

Box 6.6 Illustrative material of the case of the Province of Noord Brabant (NL)



Result

The result was negative. We were not able to convince the jury of our vision that sustainable change asks for a mind-shift first and that the narrative we presented was able to do so. We were not able to make them 'see' that sustainable change can be evoked instead of being planned by having conventional workshops in which people can have their say on what they already 'see'. The majority of people in the jury, especially the administrators, really wanted a process instead of a 'meta-

design' which should take care of self-organization by evoking collective creativity afterwards. The jury wanted especially the whole process with workshops with all kind of stakeholders to take their voice into account as they were aiming to make a 'big' difference. For them the difference had to happen in that first phase that should result in a new branded logo for the province which could be used as a 'fixed solution' afterwards. Different from the administrators, the entrepreneurs present in the jury were enthusiast about our design-approach but our proposition was not bringing on the table what was asked for.

Analysis

Participating in this competition did us realize how blinded we were by our previous experiences. We realised that we underestimated the fact that we were working from another paradigm, a paradigm that is not yet embraced by a broader audience and we realized that a theoretical explanation in a presentation is not effective to make people aware of a complementary approach.

The fact that the province decided to put our suggestion on top of their website however tells us something. It tells us that the people from the province, apart from the competition, 'see' intuitively the inspiring power of the quote (It indeed refers to the warm collective they are as a province.). This case reminds us also of the fact that the process as we experienced it in the city of Antwerp was definitely 'remarkable' while it is definitely 'hard to see' with conventional glasses that a small intervention can be of significant help in realizing big effects.

For the reader of this study it will be evident in the meantime that the fact that the suggested tagline now features on the website of the Province will not cause 'a butterfly effect' right away. To cause such 'an emerging rippling through effect', we argue in this study that besides of an 'adaptive tension engine', there is the need to manage the 'dynamics of dissipative structures' consciously. Generating change by evoking collective creativity in order to realise sustainable change (in this case: making the people see the province as a relevant partner in value co-creation on the meso-level in society) asks for consciously enabling collective creativity in the desired, relevant strategic direction. This, of course, is something else than putting a quote on a website.

Analysing both concepts along the steps of 'The Stairway to Heaven' leads to following insights:

Step 1: The designed narrative (strategic design) causes imaginative tension along the three criteria: relevance orientation, relational orientation and narrative mode.
The artefact resulting from the long process was of course, never made along the lines of the stairway. It has no relevance orientation, no relational orientation but it is articulated in the narrative mode as the sentence 'Dan denk je aan Brabant' (Then you think of Brabant) refers to a song from Guus Meeuwis, a singer from the region with a national reputation. It is not expected that this will cause adaptive or imaginative tension. It is possible that it makes the province more visible and adds warm feelings for the province but it won't change behaviour.

Looking critical to our own design, we think that it has a social orientation (relevance) but that this will not cause 'disequilibrium' as the province has always had a strong social orientation. It has a relational orientation, making the people aware of their responsibility in making the province, it frames relationships in a horizontal direction and it is designed in the narrative mode as 'ons' in combination with all kind of words is a subjective, warm and even dialectic combination typically for a major region of exactly this province. It definitely strengthens the feeling for the region, the province as a whole. One can say that the artefact we designed is causing a collective tension rather than an adaptive or imaginative tension. The disequilibrium which is needed to generate new order is not fierce either in this concept but it does allow and even invites for all kind of combinations such as has been made recently: 'Ons Brabant Fietst' ('Our Brabant Bikes'). A strong point of this artefact is definitely its simplicity and aesthetic funny possibilities as the heart-form can be used as a text-balloon which makes the communication very recognisable and synergetic with the logo.

Step 2: Mind-shift and following steps
Because of the fact that the chosen artefact and also our suggestion don't cause sufficient 'disequilibrium', it is not to expect that it will cause a strong mind-shift, that people will see a massive new horizon of possibilities and that as a consequence, new order will be generated. As no fluctuation is evoked, also the other dynamics will not 'happen'. A growing visibility is the only thing that can be expected from this exercise. The original question, however, was to realise change.

A second trial: 'Ons Brabant Fietst'
Because the constructs have not the 'power' to cause an adaptive tension, all other steps and dynamics are not supposed to happen. People won't start to rethink their roles and as a consequence one will see no spontaneous action. The new designed re-combination (Ons Brabant Fietst, Our Brabant bikes) was brought in by one of our own master-students during his work placement. This artefact has been embraced enthusiast by the province recently but it is too early to say whether this 'second trial'

will result in positive feedback and can cause on itself a process of self-organization by evoking collective creativity, collective action and an emerging organization. The aim this time is to become the top-biking province in the Netherlands in 2020.

For now 'Ons Brabant Fietst'/'Our Brabant Bikes' is designed and implemented as a co-creation platform for all organizations and institutions that take care of stimulating biking in the province.

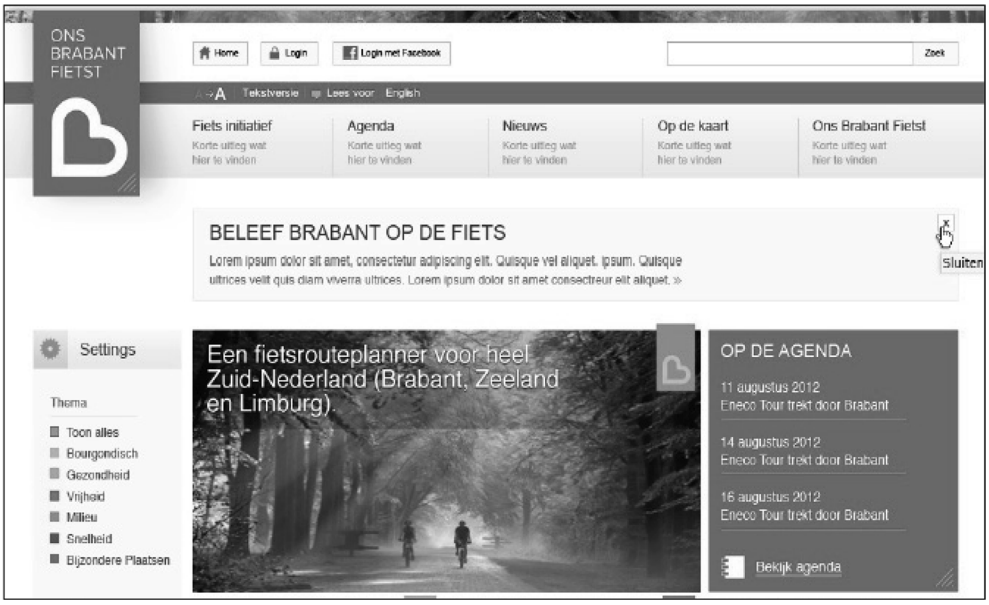


Illustration of 'Ons Brabant Fietst'/'Our Brabant Bikes'

Problem and approach in the case of the Province of Antwerp (B)
In the case of the Province of Antwerp the question was to update the logo and to make the province more visible. In this context we designed for organizational change and won the competition, even while change, in fact, was not asked for. How this process will evolve is not yet to say as it still has to start.

Evaluating the artefact along the steps and dynamics of the stairway results in following picture:

Step 1: The designed narrative (strategic design) causes imaginative tension
– Relevance tension: Provinces in today's society are loosing their relevance as the idea of 'distance' has changed a lot since the time of origin of the construct. But this does not mean that there is no relevance any longer for this 'geographical collective'. We presented the vision that the role of the province is especially

relevant for the smaller towns and communities in the geographical era while the province in all kind of issues can take care for 'scale' where the national or federal government is withdrawing from her caring role as in the case of energy suppletion. The province can play the role being there for issues where the collective is a better option than the small scale of the local community. Therefore we designed the construct of 'Samen Groeien'/'Growing Together'. Seen the silo-mentality of many provinces today, we think that this strategic design can cause an adaptive/imaginative tension which can result in a dynamic of fluctuation as long as this construct is translated in assessment interviews in order to rearrange behaviour in the micro-processes of everyday work.

– Relational tension: The construct is definitely translating the silo-mentality in the direction of co-creation, making it the essence of the relevance.
– Narrative mode: The construct is not very strong on this criterion as it is a rather rational invitation/statement but it allows for great combinations as might be seen in the presented combinations for the website such as samen leven/living together, samen genieten/enjoying together and samen ondernemen/beings entrepreneurial together (illustration below).

Box 6.7 Illustrative material of the case of the Province of Antwerp (B)

Step 2: Mind-shift
The construct has definitely the power to cause a mind-shift if implemented well. This means: if it is translated in values and translated in assessment interviews as to anchor the relational and relevance shift in the individual behaviour of the employees of the province as to make the strategic design come true in day-to-day interactions.

Step 3: Re-thinking role/relationships
Based on this artefact employees and stakeholders are invited to 'do it together' instead of alone which means rethinking roles and relationships. This rethinking will evoke the next step of action which possibly and hopefully will lead to positive feedback and collective action.

Step 4: Action – Changing routines
This rethinking of roles on a strategic as well as on a tactical level is expected to lead to new, different action.

Step 5: Positive feedback
Different action is expected to lead to positive feedback. The fact that the province already started with collective buying of energy giving inhabitants of the province to have cheaper energy than when they are an independent customer of an energy provider, already resulted in positive feedback from inhabitants in the direction of the province.

Step 6: Collective action
If many stakeholders start to rethink their co-creation opportunities with the province this might result in the generation of new order and more enthusiasm about the layer of the province in governmental issues.

Step 7: Emerging organization
This collective process of rearranging interactions might result in a never ending story, an emerging organization.

Step 8: Strategic direction towards more relevance for society at large
As the relevance is sought in all opportunities where a collective is more interesting than the local or individual scale, this might indeed be an never ending story as the opportunities are endless.

6.3.4 Discussion

What the case of Antwerp and the other governmental case-material show us about the method process-wise is that it is possible to design for imaginative tension and that imaginative tension can evoke the dynamics of dissipative structures. Whether these dynamics emerge depends heavily on the effectiveness of the strategic design and its consequent implementation in aligned management action. In the case of Antwerp we can say that the design was very effective as was the fictive design we constructed to test the method in the situation of Malin. In the two cases of the provinces it seems too early to evaluate the effectiveness.

It is also obvious that the effectiveness of the design depends heavily on the conditions of implementation: It is important that the stakeholders perceive a high sense of urgency, that the top-management behaves accordingly, that the wanted behaviour is monitored via the HRM-instruments, that the people in charge communicate positively and so on. It is obvious that only changing the logo might cause very little effects. Knowledge about complexity science could help in understanding that it is possible that a well designed 'small' intervention such as changing the logo can be an essential instrument in igniting and sustaining wanted change.

Overall we can say that the method is effective in a governmental context and that the 'stairway' has a strong didactical and prescriptive value as has the model of the dissipative structures. But we have to admit that integrating an organizational design in a logo is not an evident and easy thing to do as a logo is strongly seen as a marketing instrument and a corporate communication instrument but not (yet) as an organizational development instrument. In the natural case of Antwerp the fact that the new mayor had a communication background and that he was willing and even firm in changing the hierarchical setting towards a horizontal and more open orientation, was definitely a decisive circumstantial fact in making organizational emergence happen in Antwerp.

6.4 Evaluation of the application in retail-chain Veritas

6.4.1 Application of the design method

The application of the design method in the case of Veritas preceded the one of the city of Antwerp and it involved a total different process. As the application in Antwerp in essence involved the participation in the pitch with a strategic designed artefact, in the case of Veritas it comprised a whole co-creative process with strategic and operational employees of the company. In this case the method of imagineering was explained to the people involved and as a consequence, besides of talking about the baseline (the strategic designed artefact), employees started to talk about imagineering too and it is even integrated as a strategic competence in their company. We explain the different steps of the design method such as they were implemented in this specific commercial context.

Step 1: Inspiration: Discovering the field most relevant to co-create value
A-nalysis
In 2003 the company was no longer connected with the evolution in the market and figures were going down. There was a need to rethink the vision and mission of the company in order to survive on the longer term. In this context the company learned to know about imagineering and immediately the approach was seen as a possible solution for the company as well by the company as by the strategic communication agency LDV-Bated that was invited to rethink the strategic positioning with the CEO of Veritas. The existing strategy was seen as no longer viable.

After the participation at the conference as earlier mentioned, the author of this thesis was invited to present the thinking of imagineering at the head-office and to give an interpretation of this thinking for the company. Soon after the CEO joined the commercial Director in its conviction that a new framing of the company in the fashion-industry was needed to survive and that the approach of imagineering could be a solution to the corporate problem.

B-rooding
A whole process of brooding on the new identity started: a brainstorm-session was arranged and to prepare this meeting all employees involved were asked to fill in a book with questions on values, relevance and mission. All involved employees, some 20 in total, prepared the material well with pictures and notes and the brainstorm-day became a very intensive and relevant experience in which all people became to see a new horizon for the company. The company should no longer just sell functional sewing materials to the small target group of women who make their clothes themselves but it should become the inspirational player in the fashion-world: no longer seeing women as passive consumers of finished fashion, but seeing them as the once able to make the final touch themselves.

Based on several feedback-meetings with the management, the strategic communication agency made a book of values based on the prepared materials and the results of the brainstorm-day. A kind of identity book was designed in which the future of the company was visualised in an abstract way as to evoke interpretations and core concepts able to transform the generative dialogue in the company in a more wanted direction were elaborated upon and visualised in the little book which became the Veritas 'bible' for more than ten years.

Step 2: Ideation: Designing the desired behavioural change in an imaginative narrative (imaginative tension)
C-reation
The vision that was opted for: Women are seen as the one that can make the difference themselves concerning fashion. No longer should they be the passive 'victim'

of Paris, Milan and New York but they should be inspired to make their own fashion interpretation aided by the inspiration of Veritas. Veritas should become the inspirator of the Belgian creative women. As the CEO translated his understanding of the concept: Veritas should evolve from Store to Story: The buying combination of individual stores should no longer be oriented towards buying and selling of stuff, they should be restructured to become the inspirators of creative women and in the meantime deliver the materials to make the creative dreams of women come true.

D-esign

'Make the difference' was designed as a strategic narrative that should keep the company on track. It should create the adaptive/imaginative tension that promotes the conditions in a new order can emerge while they allow for spontaneous self-organization in a more wanted direction.

- It has a relational orientation in the direction of co-creation: it is an invitation to the active participation of all stakeholders. In the first place women are invited to be the active partners in personal fashion interpretations. And in the second place, all kind of stakeholders such as other businesses are invited to join the creative movement with Veritas;
- It has a relevance orientation in believing that people become more happy by being creative and by complementing the passive role of fashion 'victims' with personal interpretations and creativity. The company tries to give women inspiration to make fashion something more personnel and creative but maybe even more important is the fact of values-based management: employees first orientation is no longer on selling stuff but on inspiring the fashion world of women;
- It has the narrative orientation as to allow interpretations on all levels and in all settings: as well on a strategic level as on a tactical level.

Besides of that strategic artefact, a booklet about values and the future of Veritas was designed as to inspire all employees in a clear way in the direction that was seen as a better enterprise logic to survive in today's more connected and complex society. Fashion in 2012 is something else than fashion in 1892 and this booklet and the baseline and new logo are the permanent anchors that inspire and stabilize this new direction. A strategy document (booklet about values/waardenboekje) and graphical guidelines are made to explain the vision on values, identity and evolution (see attachments).

On top, to make the change memorable, an event was designed and organised in 2005 in the Museum 'Bosar' in Bruxelles to let people feel lively what the change is all about and to make the collective experience the different future they were going to make together as a collective. It was a lively event in which the employees were entrenched in the central values and the new enterprise logic and in which the new logo was revealed as an evolution from the past.

Step 3: Implementation: manage the dynamics of dissipative structures (imaginative emergence)

Experiential platform

Besides of the CEO starting every monthly shop-meeting with his vision on the evolution, talking about where they came from, where they are now and where the company is heading towards, a creative point grew spontaneously on Friday afternoon. Then employees were meeting one another to start to implement the abstract ideas into concrete practice. This meeting soon after got the official name of Creapoint. Out of this spontaneous meetingpoint people came with all kind of translation ideas such as the idea about the Veritas Book of Ideas which was made together with Libelle/Sanoma and all kind of other ideas such as the making of inspirational cards in the shops and the organization of workshops in the shops. The strategic designed concept got in practice translated in all kind of touch-points with stakeholders and all kind of practical inspiration and examples were designed to make this world come alive.

Later Creapoint got a more professional and diversified structure with processes and function in the organization such as a department of pre-styling, visual merchandising, post-styling and the use of a 'workbook' which is yearly initiated by the styling people and which has white pages to inspire the buyers to keep there eyes wide open to come with new ideas and inspiration that can be used later in the process by the post-styling people.

Recently the atelier and the website are named to be important elements in the experiential platform of Veritas and it has still to be defined how these important touchpoints will be organised to deliver inspiration for the female creative world on the longer term.

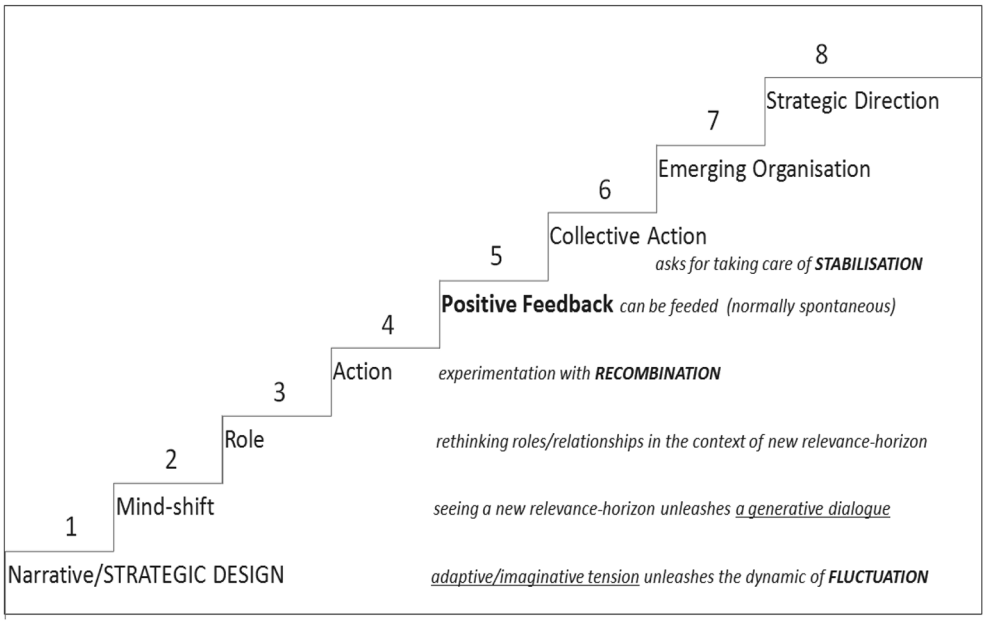
Follow-up

As is the case in the creative industries (and as is understandable from the perspective of complexity and from the process of dissipative structures more precisely), magic needs to be infused regularly to keep the process of inspiration (and fluctuation) going. In the case of the creative industries one talks about the importance of next movies and next books to keep the magic alive.

In the case of Veritas there was the co-creation with Sanoma to produce the Veritas idea-books at the very start of the whole process. Later there was the co-creation in the format on television called 'The Designers', a format that brought a competition between youngsters willing to become designers and many other 'chapters' or 'books' followed such as the atelier by now.

6.4.2 Presentation of the findings

Again, we present the findings which are based on the coherent conversations (see attachment) along the steps and dynamics integrated in our conceptual model. First we implement the steps and afterwards we implement the dynamics.



6.4.2.1 Implementation of the steps based on process induction

Step 1: The designed narrative (strategic design) causes imaginative tension
Based on the co-creative work with the strategists from Veritas the strategic design of 'Make the difference' was introduced as baseline of the logo to reframe the world of Veritas being the deliverer of sewing materials into the creative fashion world of the Belgian women. It was translated in French and English as 'Exprimez-vous' and 'Express yourself' which was even felt as more powerful by some employees in the coherent conversations.

Besides of this strategic narrative there was also the little values-booklet which reframed the world of Veritas and there was also the concept of imagineering: inspiring people as to make them think for themselves. In fact also these two last elements were influencing the tension and many elements more were involved in this reframing as there was also from the very beginning the division between prêt-

a-combiner and prêt-a-creer and there were the monthly shop-meetings introduced by a very clear forward looking picture from the CEO.

Embracing this shift was a mayor thing to do as it was embracing an unknown perspective and it still is. Integrating the world of fashion and creativity, inspiring people to become active co-creators of value asks for rethinking mayor aspects of doing business. Some employees mention the fact that they don't know whether the new route of the atelier, workshops and the website will work. They don't know whether it is possible to learn people the basic competences of sewing and knitting and whether this is the role of Veritas in the market. But there are also employees that are full of confidence and who see themselves indeed as 'inventing a new route to do business today'. " We are inventing a new route of value creation in the fashion industry and it is hard to explain that this is a possible route to former colleagues who are making budgets and buying stuff in huge quantities. When they see us being creative all the time and inventing the wheel, they think we are naive. But for us it is a very interesting challenge and so far it proves that it works well, even better as when we should join the red ocean of bloody competition. In that ocean we make no chance. Now we seem to have built a monopoly which gives us even chances to go abroad but we, indeed, have to invent our own way. A very creative challenge."

Step 2: Mind-shift

All these instruments helped in causing a mind-shift in many people involved: First it caused a mind-shift in many of the employees involved and later also in some of their suppliers and in some of the other colleague companies willing to co-create or to be associated with the creative, fashion world of Belgian women such as Innocent and Esprit. Instead of being seen as a company that lost connection with the market, Veritas was soon seen as the one connected with the market in a very authentic way.

It all started with the CEO who saw another future for the company: "Globalisation and standardisation is definitely not the end in the fashion industry. Fashion in the end is something personnel. It is a personnel statement and we should be the ones that take care of inspiring women in this direction". Therefore he had to change the structure of the organization from a buying cooperation of individual stores into an experiential world orchestrated from the platform of a retail-chain. As he explained it in his words: "The transformation made the company starting to breath again, it got back oxygen and started to evaluate and this evolution is a never ending story". And in this imagineering-evolution we take all employees with us: It is only by inviting them to use their creativity and to use that creativity in our evolution that they can inspire our customers to use more their creativity. It is a very abstract thing to do: thinking away from the concrete stuff we sell to see inspiration as the essence of our business. That's why we have to make it every time as concrete as possible. As one of the recent employees translated it: 'It is creativity that engages and connects

and that is why this is a viable business route while this is what happens in all processes and interactions. And that is very different from the passive mentality known so well in the fashion industry.

Step 3: Re-thinking role/relationships
The strategic design artefact and the other instruments that evoked the transformation changed the culture and as a consequence were translated in the structure and the interaction in the micro-processes. From a store that was oriented towards selling stuff, the orientation transformed in inspiring people as well on a strategic internal level as on a tactical level in all interactions with customers. Employees that did not feel well with this culture shift left the company and new employees were attracted that shared this passion of inspiring creativity. The whole creation process now starts from a workbook in which empty pages figure to invite employees to fill in the empty pages as to inspire the post-stylist to integrate their ideas that same season.

Step 4: Action – Changing routines
New ideas are discussed and tested as soon as possible. Ideas that prove to be successful are integrated consequently on a larger scale and this in a very consistent way. Each year the inspirational world the company wants to realise is sketched and during the year people try to 'jam' on the theme and the issues. There is way more interaction between the departments than there was ever before and also new departments are invented as being creative all the time is the core business after the transformation and one has experienced within the company that this is not an evident thing to do. It needs specific people that take the lead in this directing job.

Step 5: Positive feedback
From the very beginning it was obvious that the market was embracing the new Veritas: figures were going up with 25% immediately but also remarkable things happened such as customers that showed up in the shops to show the employer the result of their creative work.

Step 6: Collective action
People involved had the experience of sharing the same passion and from there the group of customers became younger, more passionate employees joined the company, shops were relocated to better and bigger locations and so a positive spiral intensified its direction.

Step 7: Emerging organization and Step 8: Strategic direction
The company got back connected with the market in a very authentic and integer way and all kind of stakeholders such as editors (Sanoma (Libelle), Flair, and VTM (the commercial TV-channel)), the press in general and other commercial companies

such as Esprit and Innocent are enthusiast to work with such a 'dynamic' partner with a relevant vision. The strategic direction, even if it is not an evident commercial one, has proven to be a real possibility for revitalising the retail-chain that had lost connection with the market at the turn of the century. Now the virtual world is the next field to prove its viability.

6.4.2.2 Implementation of the dynamics based on pattern matching

(Process verification with the dynamics of dissipative structures)
Again, comparable to the case of Antwerp, the process of emergence is also still going on in this case. Therefore it is impossible to give a complete picture of all specific instruments that materialize the four dynamics but we illustrate them with the most obvious ones as summarized in the table below.

Table 6.2 Implementation of the four dynamics of dissipative structures at Veritas

Four Dynamics of Dissipative Structures	Specific instruments
Fluctuation Dynamics	The strategic design/logo/logic The values-booklet The event in the Museum Bosar The atelier
Positive Feedback Dynamics	Woman create and show/share Facebook reactions Colleagues companies queuing for co-creation Employees doing their work in a proud way
Stabilization Dynamics	The articulation of values One day at the headquarter Creapoint Veritas Academy
Re-Combination Dynamics	Co-creation activities with partners Atelier concept Online – Share Workshops

Fluctuation Dynamics

– *The strategic design/logo/logic:* The new logo with its baseline reframed the relations and the relevance of the company in an appealing and simple way as to serve as a continuous and solid steppingstone to keep everybody on track in the new direction of value creation.

– *The values-booklet:* Articulating the values in a booklet and introducing them clear and well on the launching event made employees self-confident in daring to be creative and rethink their routines in all kind of circumstances. It also serves as an introducing booklet for new employees.

– *The event in the Museum Bosar:* The launching event in the museum Bosar in Bruxelles made people feel that the new direction was chosen with respect for the past and it made them feel the difference physically (see attachment history of the process). It made them feel that there were changing as a collective and that this was a radical shift as the event was directed as a milestone in the history of the company.

– *The atelier:* The atelier is again a new concept in a long row of new concepts all being steppingstones in an evolution towards more inspiration for women in the field of fashion. The atelier is meant to be a physical space where inspiration can go as far as learning traditional methods of sewing and knitting and where people can have the original feeling of doing the creative work all the way, even separated from the store. In the atelier one has no longer the feeling of being in a shop. This is the latest experiment of the company in creating once more fluctuation in the direction of creativity in the fashion industry. It is meant to find out how the company can even more mobilize a network of inspirators (a network of handcrafting women) and interpreters (customers who want to go even one step further in doing the 'real' thing).

Positive Feedback Dynamics

– *Woman create and show/share:* From the very beginning, adapted shops grew with 25% turn over and on top, one had the experience of customers coming back to the shop to show their creations. It showed from the very beginning that people were happy with the new Veritas.

– *Facebook reactions:* Also on Facebook, there were daily immediately enthusiast reactions of customers who were starting a conversation with the company.

– *Colleagues companies queuing for co-creation:* Colleague companies are queuing now to co-create with Veritas something they never experienced before.

– *Employees doing their work in a proud way:* At the moment it is more easy for Veritas to get great people working for them and also to get younger people taking jobs as they are explicitly asking for creative people that can 'make the difference'.

Stabilization Dynamics

– *The articulation of values:* The fact that values are explicated and articulated in a booklet with inspiring pictures that illustrate the values, makes it more clear to people what attitudes are expected in this world of Veritas and it also makes people more engaged and knowledgeable about the constructive expectations of employees.

– *One day at the headquarter:* The fact that the management took the time to talk with all shop-employees one-on-one at the beginning of the process, gave people the time to understand the new concept and make it theirs while discussing their experiences and expectations in an open and friendly atmosphere. It gave them the time and intensity to reframe their own thinking in a way that they were invited to join the collective from their own point of view.

– *Crea-point: T*o concretize the abstract thinking and make the envisioned evolution come true, creative employees of all kind of departments started to gather spontaneously on Friday afternoon. This spontaneous meeting-point was encouraged by the management and soon after it became the creative interaction from which all kind of new initiatives started. Recently this team has been changed in a more professional implementation as during the years it became obvious that a more professional approach was needed to bring the sufficient inspiration for something that was so crucial to the evolution of the organization.

– *Veritas Academy:* To introduce new employees and to educate people for jobs that are not available on the market, the company started to organize its own education under the umbrella of Veritas Academy.

Re-Combination Dynamics

-*Co-creation activities with partners:* As Veritas is seen now as a dynamic player in the market that is strongly connected with women and their creativity, many companies are interested to co-create business with them. At the moment the company needs more people in the marketing department to be able to handle all these questions in a way that the company's values are realized in all activities. But the co-creation activities bring also new oxygen and new ideas to the company. For example: Veritas now participates in a format on the commercial television: 'The Designers', together with another national player in the fashion industry. The relevance for the business was clear from the very beginning and at the same time, the participation has great synergetic effects on our purpose of being 'the inspirator in the market concerning self-expression and making fashion yourself'. Another example is the promotional activity together with smoothie-maker Innocent: For each sold smoothie in the 'Goedgemutste breicampagne', 30 cent is donated to a charity cause that is chosen every year in a country.

Box 6.8 Illustration of co-creation activites with partners (Varitas and Innocent)

– *Atelier concept:* Even while the atelier doesn't give the impression to be part of the shop, the activities are definitely meant to drive the company's business and marketing. It is seen as another way to generate business and exposure/free publicity.

– *Online – Share:* Also the online business is seen as a medium which makes it easier to explain the essence of the business. Veritas will not only offer a web shop but it will be in the first place a website that inspires to act creatively, once more a re-combination of existing assortment in another inspiring context in which also the concept of sharing will be elaborated upon.

– *Workshops:* Workshops are another medium to inspire customers and finally to drive the creative use of the materials sold at Veritas.

6.4.3 Cross Case Comparison in 'commercial' experiments

6.4.3.1 The case of the 'anonymous company'

The question

At the end of 2009 the company was firmly confronted with growing inter-activity in society and with a new competitor entering the market with a rather aggressive style offering the service for nearly half of the price. As a consequence of a changing landscape and a changing policy, the company got thousands of emails a week from their customers asking for the consequences of the changes in policy for their specific situation. These questions were so specific that only a few people in the company were able to answer those mails.

Combined with the appearance of firm competition, the growing interactivity made the company aware of the fact that this changing societal context asked for a transformation of the enterprise logic of the company to be able to act more flexible and adaptive. At that very moment, there was a real sense of urgency to think strategically about the organization and its enterprise logic.

In this context it was decided by the Commercial Director that a group of young strategic managers should develop an understanding for the changing logic in society and for the opportunities of the company to transform. The author of this thesis was asked to coordinate this educational process of the strategic employees. It became a valuable experience for the participants and an interesting case to enrich the understanding of the successful 'commercial' picture as presented based on the experiences with the Veritas-case.

The process

A broad process was developed under the umbrella of 'from innovation strategy to strategic innovation: Re-inventing Corporate Value Creation'. It became a process of four weeks in which the executives in every week participated in three days of classes and discussions and two days they worked on the three 'deliverables' for the whole process:

- A business transformation report
- An imagineering inspiration guide and
- The making of … , a movie that should tell the story of how the company changes its enterprise logic.

The business transformation report was meant to report on their insights and reading on how to transform an organization strategically and also to report on activities they were organising with their other colleagues (that were not participating in the 'course') in the context of this process.

The inspiration guide was meant to visualise the contrast between how the company was doing things in the industrial exchange logic and how it should do these same things now and tomorrow in the connected society based on the narrative that the group was going to design.

Aligned with the inspiration guide it was the idea of the participants to make a little movie as to invite their thousands of colleagues to join the movement.

The results

The group of young strategists was very enthusiast about the process and they finished the course making the first two instruments: the business transformation report and the imagineering inspiration guide. Both instruments were then presented to the management team of the company.

The implementation in the company
While the group was going through the process, unfortunately the sense of urgency to transform the enterprise logic for the company disappeared as the fierce competitor did not survive with the chosen quality and business model and also the policy issue turned out to be just a political idea and nothing more so far.

The management team accepted the deliverables positive but decided to keep the enterprise logic as it was at that moment while there was no need anymore to transform the organization and they also decided to implement the interesting idea that was developed under another name: replacing the narrative mode by the rational mode. Under this name the concept did not became the success the group of young executives had hoped for. Soon after some of these young executives left the company and started their own company. Others continued to work with the company the way they did before.

Discussion
For the author this experience was an important learning moment. It showed that there is a big difference between studying and preparing strategic innovation and transforming the enterprise logic of a company. It made clear that such a transformation can only happen when the CEO him- or herself is involved and even leading the process as in essence it is about disrupting political equilibriums and asks for bold visionary and entrepreneurial thinking and acting of the top of an organization in the first place. A well designed narrative can be very powerful but only in the hands of the top of an organization as in the end changing the enterprise logic is all about the implementation. On its own a well designed narrative can do nothing. It provides an infrastructure for generating new order by igniting, framing and enabling collective creativity but only in case it is anchored in day-to-day work and this can only be decided upon by the top of the organization. In this case a big sense of urgency could have helped the interest of the top to think things over but while the sense of urgency disappeared soon after the project started, there was no reason anymore to think things over.

Also, for the top of the organization the narrative mode was not seen as important for the implementation of the concept. The invitational mode to inspire people to join the movement deliberately making use of their own imagination, was not seen as a driving force for a collective, creative movement. In the conventional logic of management thinking, the narrative mode is associated with the creative industries such as poetry and the movie world but is not felt as 'their' linear logic of strategizing.

6.4.3.2 The North-project

The question
In the tourism industry and also in the recreation industry major changes are happening in the landscape as there is for example the massive disappearance of travel agencies as a consequence of the shifting power into the direction of the consumer. As this are the traditional industries for which NHTV educates, these companies are regularly knocking at our door for collaborative research. There is a big sense of urgency in the tourism industry to transform the enterprise logic in order to survive in the connected society. In the recreational industry the question for transformation is also vivid while an important part of the industry is seen as outdated and not connected with today's guests.

The process
In this context the author of this thesis developed a collaborative research project in which ten recreational companies participate yearly in a parallel process with the regular master course in imagineering at NHTV. This offers the possibility for the participating company to learn about new approaches and insights especially in the field of marketing and organizational change. At the same time this collaborative process offers master-students the possibility to practice the transformation process together with strategists in a real company and to discuss the experiences on a strategic level. Besides of studying the problems on a company-level, the groups also discuss the consequences of today's changes on an industry level.

Results and discussion
Depending on the organizational design qualities of the students, results are sometimes very good and this has definitely to do with the fact that the CEO's or owners of the companies are involved in the collaborative research process. When the strategic design is made effectively, collective creativity grows in these companies and they experiment and function more adaptive and intensive than ever before. In these cases where the narrative has been designed well, a comparable 'emergence' appears as we discovered and described in the case of Antwerp and Veritas. The managers report on lowering figures of absenteeism of employees, more creativity, better strategic thinking and acting by middle management and fewer complaints from guests. While this project is now running for three years it is still hard to judge whether these changes can be said to be sustainable.

Box 6.9 Illustration of concepts made by students and executives in collaborative research projects

'Marveld Recreatie, Waar je mensen gelukkig maakt'.

'Marveld Recreation, Where you make people happy'.

The above concept that is developed by master students, is reframing the organization in the sense that 'you' in the strategic narrative is meant to be the customer, the person who takes the decision to 'buy' the holiday for the family or the group of friends. This way it is his or her creativity that will be facilitated by the company.

The owner of the company definitely sees the effects in his organization: people are oriented towards happiness and towards facilitating creative ideas of guests. He also reports on fewer complaints from guests.

'Omnivents, People, Power, Play' is the strategic design master students created together with the owners of Omnivents, a year ago. Omnivents is an organization that is focused on corporate events with the objective to build good groups dynamics. With the financial recession, figures were going down. By reframing the original, focus on organizing events into the focus articulated in the combination of the three words 'people, power and play', the management is enthusiast about the change in collective creativity that emerged from that change. They say the organization is now better enabled to explain why even more in times of recession, it is important to keep going with investing in people to keep them creative and dynamic and also they are now better enabled to think more creatively in their actions and new products.

The owners report also on a better creative atmosphere in the organization: spontaneous brainstorm session on Friday afternoon as they experienced during the collaborative research process are continued and prove to be very effective. They now have a better idea of how they can align all they do and communicate (even more frequently using the social media). On top they report growing figures.

6.4.4 Discussion

What the case of Veritas and the other commercial case material is learning us is, that it is very well possible to design for organizational emergence and that the complexity-based design method of imagineering is effective in doing so. But it is also obvious that it is only one step, be it an important one, in a way broader process of realising sustainable change.

A crucial element in realising sustainable change lies in the fact whether the management is behind the idea of shifting the hierarchical approach towards a more horizontal approach. This shift is essential in enabling creative thinking and acting across boarders of departments and organizations. As the manager of Veritas articulated his own experience: "Now I am in the middle of a circle and I can't escape from it. For many managers this will be a nightmare and if they realise this on the forehand, they won't make the choice for imagineering. But when you dare to make the choice, you never want to go back to the former hierarchy while collective creativity is the essential ingredient an organization needs nowadays, to be healthy. It is a pity that without an important sense of urgency, this route won't be chosen for".

Another essential element seems to be the articulation of company values, values-we-live-by. Without this translation in values, 'self-organization by social control' seems not to take off and people stay in the 'objective world' of existing routines to 'please' the management. The condition for collective creativity should be made as tangible as possible by articulating core values that are used in the HRM-instruments but also by making instruments such as an inspiration guide that keeps people aware of the intended collective evolutionary perspective. Without these tangible elements it seems to be hard to keep people going in the envisioned direction with the aligned change in the micro-processes. Without these tangible elements, the fall back scenario is dooming.

6.5 Discussion

The objective of this chapter was to evaluate the effectiveness of the imagineering design method in practice. The central question we tried to answer is whether the method is effective in realising an emerging process towards a more complex level of functioning and whether the method is doing so in a sustainable way? As we illustrated in chapter 4, according to the imagineering design approach this emerging process can be orchestrated by strategically igniting and framing collective creativity.

Based on the applications analysed and presented in this chapter, and focussing in this analysis predominantly on the two central cases, we can say that the method can indeed be said to be effective in realising sustainable change under specific conditions. First we explain why we answer the question positive and then we explain the conditions under which we evaluate the method as being effective.

6.5.1 Effectiveness measured the conventional way

To start with the criteria of measuring effectiveness the conventional way as articulated by Cameron et al. (2011): satisfaction, willingness to recommend the organization, turnover and organizational climate (in which we saw the concept of work engagement as an interesting measurable phenomenon), a list of criteria to which we added the criterion of attractiveness in the labour market. Measured on these criteria we can say that the method as applied in Antwerp and Veritas, was effective.

- Satisfaction of the inhabitants augmented with 5% as measured by the city of Antwerp;
- The willingness to recommend the organization was in both cases 'measurable' by the fact that many employees stimulate friends or relatives to come to work for the company;
- Turnover grow remarkably at Veritas as was shown in this chapter and the company now has plans to go abroad with the concept and to roll out a web shop;
- In general, the difference in atmosphere between visiting the company as a researcher some ten years ago and now, was in both cases remarkable. Where we met a 'depressed' organization in 2003 and 2004, in 2011 we met very healthy and enthusiast people that were engaged in their daily jobs and had plans for taking the 'movement' towards more openness in Antwerp and towards more creativity and self-expression at Veritas, even further. Work engagement, even while we didn't used 'The Utrecht Work Engagement Scale (UWES)' (which we consider to use in our future research) to measure it, was remarkably high as proved the statements in the coherent interviews, especially with the people that were already working with the company at the moment of the introduction of the new logo with the (organization development) tagline.

There was indeed an important difference in the articulation of what happened between the 'old' employees and the 'later' employees. The former attributed an important part of the shift to the introduction and implementation of the artefact while the latter sometimes thought that that artefact had been there all the time. For them it was evident that things were the way they were. While for the 'old' employees, the once working for the organization at the time of the change, things changed remarkably. They remembered a time of fear and shame in Antwerp and a time of working hard for bad results at Veritas. In both cases those people remembered a 'closed gates' working mentality and they expressed their feelings of happiness with today's creative working mentality.

Comparable to positive practices, we see that collective creative practices evoke these same effects as positive practices as articulated by Cameron et al. (2011). We add to these three the entrepreneurial effects and the strategic synergetic effects.

– *amplifying effects*: collective creative practices such as help asking, help giving, reframing reflectively and reinforcing, just like positive practices provide an amplifying effect because of their association with positive emotions and with social capital;

– *buffering effects*: Imaginative practices just like positive practices also buffer the organization from the negative effects of trauma or distress;

– *heliotropic effects*: collective creative practices just like positive practices also possess attributes consistent with heliotropism, the fact that all living systems are attracted toward positive energy and away from negative energy.
One of the most remarkable findings is this research was the fact that in both natural cases a situation grew where external stakeholders are asking for co-creation while previously, as well Antwerp as Veritas, were seen as actors to avoid. Now both are seen as dynamic value creators that make sense for society at large and therefore are sought after for initiatives of co-creation. Choosing for an orientation on relevance instead of efficiency, both actors seem to create their own fields of value creation, in a way one can say that they also create their own market.

– Besides of these effects, we discovered *entrepreneurial effects*. As people like to create and seeing collectively a new innovation horizon, they show an amazing entrepreneurship in building a collective more wanted direction. Self-organization then works as it is embedded in a social context (with its embedded social control).

– *Strategically, synergetic effects*: Collective creative practices stimulate experimenting and learning and as there is a clear strategic direction, the organization becomes better, more effective, by doing. It is interesting to see that based on this method strategy no longer depends on the creativity of the top of the organization only invites employees for creative thinking on all levels, aligned with the strategic chosen direction. This gives the organization a growing adaptability under complexity.

6.5.2 Effectiveness evaluated the complex way

Evaluating effectiveness according to the complexity stance, being the qualitative process towards a more complex functioning, it became evident from the presentations that the analysis of the coherent interviews were a very rich base that allowed easily to implement the 'Stairway to heaven'. Also the dynamics of dissipative structures could be recognised well in the activities that took place in the process during the decade in which the process was going on in both cases. We can say that both these organizations were in trouble ten years ago and that both of them were reporting 'great' times today even while times were definitely not becoming less complex.

The next question of course, is whether this positive evolution can be attributed to the intervention called imagineering. As we already stated in chapter 5, this is question is tough to answer as this kind of interventions touches upon all aspects of an organization and is also influenced by environmental aspects. But what we think we can say is that the positive evolution in both cases shows an important growth in collective creativity and collective work engagement. In the case of the city of Antwerp, one can say that this can also be a consequence of a changing mayor with a creative profile who embraces complexity and self-organization. That definitely was an important element. But in the case of Veritas there was no such recent change in the management that could be pointed at in regard to the augmentation in collective creativity.

We are convinced that it is the interplay of all the elements pointing in the direction of more relevance and different relationships in the sense of seeing external stakeholders as participants and even as co-designers in value creation, that makes an organization emerging from a closed situation towards an open and vital situation at this very moment in time in a sustainable way. Management teams and CEO's specifically, play definitely a crucial role in this process as are other tangible elements such as an articulation of values and its translation in the HRM-instruments or the construction of an inspirational guide or movie to inspire people. But even while being critical to the role of the tagline, we are convinced about the fact that, in case the tagline is well-designed, it can play a crucial and unique role, a role that can't be played by another element in the mix of elements and that is the role of

catalysing a mind-shift in the individual and the collective at the same time in a strategically wanted direction. Words are the mechanism that help us relating to the world and that do so in a consistent way. But it is obvious that the different elements have synergetic effects on one another.

The artefact is also just the first step and if no steps follow, nothing will happen. It is not by 'making people see' that they also will act upon what they can see now. It is only by changing the behaviour of the collective (slightly) that a changing situation can emerge. Therefore: steps have to be taken to guide the micro-shift in behaviour. So, here are the conditions that have to be taken care of to make the emerging process work. For example:

- Reframing the identity in the narrative mode (a condition which seems already difficult to choose for by conventional strategists);
- Don't communicate about communication as an effective adaptive tension engine should speak for itself;
- Articulating company values and monitoring them in the HRM-instruments;
- Management lives the values by example;
- Prefer to speak about evolution instead of change as the word change can evoke resistance;
- Communicating about the actions that should be positively stimulated as positivity leads to action;;
- Enabling rich and divers interactions.

As already mentioned, the model of dissipative structures offers an interesting structure to 'manage' emergence. New initiatives that are aligned with the imaginative tension that the strategic design causes, cause fluctuations which are often re-combinations of existing materials in new formats and if they are successful they result in positive feedback. New initiatives are always controlled by both actors on their alignment with the articulated corporate values and if they are approved, they are realised and can cause fluctuation in the market but at the same time they stabilize the organization as they once more strengthen the values of the organization.

Comparing both natural experiments, the emerging process in the City of Antwerp impressed us even more in its creativity and diversity than the emerging process at Veritas. We attribute this difference to the fact that the complexity-based approach works even better in bigger social settings with more possible and different interactions than in smaller social settings. This of course is a contra intuitive feeling as change in bigger companies seems to be more difficult to realise. But from a complexity perspective it is possible that small interventions generate even bigger effects in bigger networks.

6.5.3 Practicalities

We do not doubt that there are more methods possible to transform the enterprise logic but the method of imagineering which enables self-organization, has definitely some very positive points. First of all, the method is rather cheap and easy to implement. It does not ask for huge audits and an intensive SWOT-analysis or a whole process of workshops. It can be done by the management assisted by somebody who is used to design in the narrative mode who is assisted afterwards by a graphical designer who can integrate (or add it to) the designed narrative in the existing logo. Further the designed narrative can be implemented gradually as it adapts seamlessly to the existing way of working. Integrating the narrative in the logo will definitely change the dialogue in the midst of all stakeholders and while the designed narrative will generate sense-making dialogues, stakeholders that are interested in the strategic direction will feel engaged to reflect together on the meaning it could have for the company and for society at large.

Then also, the design method of imagineering is suited to complement other positive management and change approaches such as appreciative inquiry. First it extends the process to the external environment which isn't the case necessarily in the approach of appreciative inquiry and second, the designed narrative gives the intervention a continuous and permanent creative character which is sometimes missing in appreciative inquiry. Sometimes this is noticed as being one of the problems of appreciative inquiry. In discussion with practitioners familiar with appreciative inquiry it is often brought under the attention that appreciative inquiry is excellent in energizing the company but that after the second phase of dreaming, the energy sometimes disappears at once when people have to go back to reality. Designing consciously a narrative artefact in this context could solve this problem. In the practice of appreciative inquiry sometimes a narrative is unconsciously emerging from the situation and used as a metaphor to keep the 'magic' going (Fry, Barrett, Seiling, and Whitney, 2001).

One of the major problems of imagineering seems to be the fact that in cases where there is no high sense of urgency, it won't be evident to convince the management about the use of the narrative mode and about the potential of small interventions to realise big effects. 'Crisis' seems indeed to be a 'mobilising metaphor' for allowing new thinking.

6.5.4 Benefits

One of the biggest benefits we discovered in our experiments is the fact that the imagineering method reconnects people and departments. By generating new order it asks for constructive and creative dialogues between people and departments that

were disconnected from one another in the industrial exchange logic. The designed narrative functions as a sense-making devise and as such it has the potential to humanise the enterprise logic in a very concrete way and it does so more than any other mechanism we could discover so far. What we seem to uncover is a way of making money by making sense but of course, more experiments and longitudinal observations are needed to be very explicit about such a statement which is that far from today's enterprise logic.

Besdides of reconnecting people and departments, another benefit of introducing the method seems to us to be the positive effect on work engagement. One of the impressions we got doing the interviews was the happy atmosphere that seemed to have grown in both the organizations under study. CEO's of involved companies, even the ones that implemented the method only one year before the research, reported on more enthusiast, positive and constructive employees, less absenteeism, more satisfied customers and less complaints from customers/guests. They also reported frequently on co-creation possibilities which weren't there before the introduction of the designed narrative.

The designed narrative integrated in the logo seems to put an organization in the 'forward' mode of creativity and engagement internally but also externally. It is our conviction that it are these more values-laden interrelationships and the orientation on relevance for society at large that make these organizations more vital, more fun and constructive to work for.

6.5.5 Unattended issues

The only way to find out whether the self-organising mode of strategizing of imagineering is more effective than the more rigid conventional mode of strategizing and in which cases it might be more effective, is by experimenting with the method and by following these experiments on the longer term. There is no other way to find out than by testing and experimenting in reality.

It would be very interesting to follow the case of Antwerp and Veritas on the longer term as in both cases recently (after doing the interviews) the artefact has been changed. In Antwerp the new (Flemish nationalist oriented) mayor has taken off the second part of the logo as he says: "the city is no longer from everybody". And in the case of Veritas, the change of strategic communication agency has also resulted in a new tagline: 'Details die het doen' (Details that matter), a tagline which is not oriented towards co-creation and building relevance for society at large. So, in both cases it is interesting to follow whether the imagineering culture is sustainable without the tagline (integrated in the logo) or whether it is not. In that last case it is interesting to study in what direction the culture moves.

6.6 Conclusions

In both our natural experiments we can say that the imagineering design approach was effective in revitalising the organization, be it a governmental collective or a commercial collective, either while intervening more unconsciously as in the case of Antwerp as in the more conscious approach of Veritas. It is true that in both cases there was an important sense of urgency. So, the initial conditions for effectuating a butterfly effect, an emerging effect of rippling through an ecosystem, where definitely there. At the same time the experiments prove that behaviour and routines can indeed change as they are evoked in an appealing way and this, of course, is a mayor discovery as it is generally assumed that behaviour and routines are hard to change.

Applying the method in both cases shows that it is possible to transform the enterprise logic by a process of emergence starting from the design of a sense-making devise as in both cases the organization is able to function better under more complex circumstances. Essential in this process seems to be an important sense of urgency, the unleashing of collective creativity, the formation of a setting with social control, social inspiration and divers social interaction. Managing the dynamics of dissipative structures in a consequent way and integrating the artful lens in the logo, seem to us to be important instruments in safeguarding the essential liberation of collective creativity. It also shows that the method of imagineering brings forth the wanted effect of connecting people and departments across (silo-)boarders in processes of collective creativity which makes the organization more adaptive in times of growing complexity and growing turbulence.

The evaluation model of 'The Stairway to Heaven' and the matching model of the dynamics of dissipative structures offer a theoretical explanation of the evolution of the organizational collective as a consequence of using the design method of imagineering in coping with strategy under complexity. But they are also instruments helpful in managing the emerging process. The dynamics of dissipative structures show how a social system can continuously emerge to growing diversity by emergent self-organization while maintaining a state of perpetual disequilibrium.

It also shows that

(1) we can design for this process by designing for fluctuation. Reframing the identity on relevance and relationships in the narrative mode in the context of changing enterprise logic, seems to be an effective design method to evoke the process of emerging self-organization;
(2) positive feedback loops emerge spontaneously while constructive people want to embrace the change;

(3) coordinating mechanism in which communication mechanisms help stabilize the newly emergent order; and
(4) recombination can renew the social order, add variety, and fuel positive feedback loops.

It shows that attending to these dynamics that underlie emergence allows for filling an important gap in the literature on organizational design applications of complexity science. Our analysis shows empirically how these four theorized mechanisms led to the emergence of new order in the organizational collective of the city of Antwerp and the retail-chain Veritas.

From the present results and the ones available in the literature we can say that designing mental models in the narrative mode is a possible route to self-organization and that the method has an important potential in strategizing under complexity. A possible future lies in designing new schemes that inspire distributed, non-cyclic and self-organising processes of value creation and innovation. But for the time being there is much to explore in designing for organizational emergence and there are several directions in which the specific method of imagineering could be improved. At the present state our method may be oversimplifying complex issues as we only explored our method on a national level, in one linguistically geographical area. However, the present results are very promising and they definitely encourage us to further discover the method and compare it to other eventual self-organising (design) methods in organizational settings.

Taken together the implications of complexity science for organizational thinking, the field of positive organizational scholarship and practical methods such as appreciative inquiry, strengths-based approaches to change and our design method of imagineering in the context of new enterprise logic, invite to explore the foundations for a new, 21st century field of organization development. Instead of calling for a more innovation-inspired positive organization development (IPOD) movement as Cooperrider and Godwin (2011) do, we would like to suggest making it an 'imaginative positive organization development' movement.

In the next chapter we formulate the answers on our original research questions and we discuss the implications of this research.

7 Contributions, Limitations and Conclusions

Abstract

After having articulated our main contribution to science, in this last chapter we do mainly two things: we articulate our research conclusions, in which we answer the research questions that were raised in chapter 1 (see section 1.6) and we engage in a closing discussion on implications of this study. Here we will reflect broadly on the implications of our thinking about organization development and systemic innovation, the implications for designing and design thinking using the lens of complexity science insights in handling complexity, the implications for strategizing under complexity and the implications for management education. Besides of these two main sections we reflect on the limitations and the challenges of the method and finally also on where we think the method should go from here considering its further development and use.

Men and women confronting change are never fully prepared for the demands of the moment, but they are strengthened to meet uncertainty if they can claim a history of improvisation and a habit of reflection. Learning to savor the vertigo of doing without answers or making shift and making do with fragmentary ones opens up the pleasures of recognizing and playing with pattern, finding coherence within complexity, sharing within multiplicity.

Mary C. Bateson

"Systems literacy is not just about measurement. The learning journey up the ladder of complexity—from quarks, to atoms, to molecules, to organisms, to ecosystems—will be made using judgment as much as instruments. Simulations about key scientific ideas and visualizations of complex knowledge can attract attention—but the best learning takes place when groups of people interact physically and perceptually with scientific knowledge, and with each other, in a critical spirit. The point of systems literacy is to enable collaborative action, to develop a shared vision of where we want to be."

Thackara, 2005

7.1 Unique contribution of this study

Coping with (growing) complexity is not a matter of fixing the past but is a matter of inventing the future. According to Padgett and Powell (2012) the social sciences have developed a good understanding of choice and equilibrium but little understanding of the emergence of novelty. Growing complexity now confronts us with a different context and complexity science offers us a new perspective to handle this phenomenon of organizational or systemic innovation by emergence consciously. For developing new answers, it is not possible to rely on 'best practices'. Developing new answers that work asks for experimenting and reflecting on the experiments that are executed from this different perspective. Developing new answers is a matter of experimenting consciously and consecutively trying to understand what happened in these experimental interventions and especially trying to understand what happened when things worked remarkably well. And this is exactly what this study has done: analyzing and trying to understand our complexity-inspired experimental interventions that were effective in realizing sustainable change evaluated in a timeframe from nearly ten years.

Now, coming at the end of this study, we are more than ever convinced about the importance of doing this reflective work to discover new answers and to evaluate the effectiveness of design interventions. In both our natural core-cases, Antwerp and Veritas, times are changing again. After ten years time, the artifacts have been changed again in both cases: In Antwerp the new mayor decided to skip the tagline as he evaluated the tagline ('The City is from Everybody') as being a remainder of the socialist time frame in the city which has ended with his appointment in 2013 (the newly elected mayor, Bart de Wever, is leading the Flemish nationalist party) and at Veritas a new advertising agency has been chosen that developed the new tagline 'Details die het doen'/'Details that work' to orchestrate value creation in the future. As the reader of this study can easily see: times are changing but from a research perspective it is even more interesting to keep following the evolution in both natural case studies. For now, we will concentrate on what we learned from this study covering a period of nearly a decade.

The essence of what we learned is that *reframing value creation* (transforming the enterprise logic from the industrial exchange mode to the networked mode of value co-creation) *can be realized by strategically igniting and orchestrating collective creativity via the complexity-inspired design method called imagineering.*

Doing so

– we add in a pioneering role to the existing organization change and development literature (situated in the triangle of complexity, management and design), by taking the construct of 'conditioned emergence' (MacIntosh and MacLean, 1999) further into the direction of 'designing for organizational emergence' and

– we challenged accepted thinking. We challenged
  - the evidence with which 'design thinking' makes use of conventional (linear) systems thinking in working with social or organizational problems;
  - the belief articulated by (Dunne and Dougherty, 2012:580) that "transformative organizing may not be appropriate for organizations in all type of industries" and that
  - self-organizing communities and emergence can only be enabled around knowledge objects.

We explain the unique contribution of this study to the field of organization development by explaining shortly the three elements of this sentence.

Reframing value creation

It was Ilya Prigogine (the Nobel Prize Winner Chemistry in 1977) himself who explained growing complexity in society as a consequence of growing connectivity. In such a connected society, value creation can not only be orchestrated in a sequential, planned way predominantly realized in value chains, but it can on top be roved over by the simultaneous way of value creation orchestrated in value networks using the complexity lens to cope with complexity. This new mode of value creation enlarges our possibilities to create value and also, it alters the way we can orchestrate change and transformation. Value creation and realizing change or transformation is no longer a matter of planning, but it becomes a matter of framing and reframing by design. The process is no longer a matter of controlling a fixed direction but one of evoking collective creativity to foster emerging processes (as has always been the case in the movie industry and in original tribes in which people were connected with one another) in an envisioned direction. In order to be able to mobilize something like collective creativity, people need to be connected. It is because of our augmented connectivity that things become more complex but also, that it becomes possible to tap into our collective intelligence and, especially, our collective creativity. It is the growing complexity in society that offers us the opportunity to generate new order in society: on the one hand it offers the opportunity to reframe value creation and at the other hand it offers the opportunity to effectuate change from the complexity perspective. The question then is, what is collective creativity and how can we mobilize it by design?

Collective creativity

Creativity has been defined by George (2007) as "the generation or production of ideas that are both novel and useful". For a very long time creativity research has been entity-based: creativity has been considered as being a characteristic of an individual, most probably while creativity is a particular fascination of psychologists.

Recently however, interest is growing in the phenomenon of collective creativity which is defined by George (2007) as "coming up with new ways to combine old and existing ideas, procedures and processes to arrive at creative solutions to problems". Even while communication has been recognized as crucial in processes for overall creative performance (Leenders, van Engelen and Kratzer, 2007), collective creativity is specifically different while it is about the creativity that emerges from the intensive interactions of ideas of diverse people in a collective rather than from the mind of any given individual (Marion, 2012). Collective creativity is the creativity for which no one individual insight is by itself responsible for solving the problem. Collective creativity is the creativity that emerges in interaction in relationships.

Even while the actions of collective creativity such as asking help, giving help, reinforcing and reframing, seem evident and easy, in many organizations collective creativity is constrained and undermined predominantly while creativity is seen as a characteristic of the competent employee and as a consequence, asking for help and sparring collectively is perceived as a social cost that few are willing to pay, especially those employees with a higher occupational status. But it is evident that with growing complexity in society, the need (and the possibility) to liberate collective creativity becomes more manifest than ever. On top, being able to work creatively makes people more engaged and the organization more adaptive in times of high turbulence. As such, we can say that we discovered rather 'accidently' that integrating the reframed business conception in the logo is a very interesting way to cope with the problem of constraining and undermining collective creativity by bureaucratic, hierarchical thinking and acting. It is in this context of collective creativity that the importance of the narrative mode should be understood.

It is in seeing creativity as a systemic characteristic and a systemic process that the narrative mode and the design of linguistic artifacts come into play as they enable and inspire the process of collective creativity. On top, the narrative mode has heuristic and holistic properties, properties that are extremely useful in coping with complexity at the one hand and in coping with our historical separation in divisions and departments which limits the horizontal processes in (internal and external) networks that are needed in processes of re-combination at the other hand. In the movie industry the linguistic artifact that ignites and inspires collective creativity is called the 'high concept'. In complexity language this construct that ignites and evokes processes of emergence is called the adaptive tension engine, the engine that evokes the dynamics of dissipative structures: fluctuation, recombination, positive feedback and stabilization. It is the adaptive tension engine in our view that can evoke the so called 'butterfly effect', the effect of rippling through an ecosystem to be amplified by all the interpretations that build upon one another as to emerge into something big. The question then is how we design the adaptive tension engine in order to evoke processes of collective creativity, to evoke what we have called imagi-

native emergence. And also, how do we keep this process of collective creativity sustainable on the longer term?

Strategically igniting and orchestrating processes

That words create worlds is a long existing statement. Words act as windows in making us see a 'reality' (even while we all see a different reality through that 'same' window), as what we can see depend on our own experiential, associative world. We can use words to reframe existing situations as we illustrated with different examples such as 'homeless' and 'home-seeking' people. In the movie industry, this framing-activity is executed from an artistic perspective, having no other strategy in mind (mostly) than expressing individual emotions and impressions. What is less consciously known is the fact that this world-creating activity, this narrative (re-)framing, can also be done with a strategic orientation in mind. With the words/windows we design, we can make people see a new, (societal more) wanted innovation horizon as to enable the collective creativity in the envisioned direction, for example the innovation horizon in which customers are no longer passive objectives but active co-creators and co-designers of value. This study illustrates that we can redesign the business conception to reframe value creation strategically.

But reframing value creation and designing a linguistic artefact that causes a mind-shift that makes people see a different innovation horizon does not yet mean that people will evidently change their behaviour and will act accordingly upon it. Therefore, the designed artefact has to have imaginative power. It has to have a rich associative base and the suggested direction has to make sense in the lives of the stakeholders. The frame has to appeal to their emotions, their values in the social setting of the collective. This is why designing in the narrative mode is crucial, because of its heuristic and holistic properties. But even when one succeeds in designing such a relevant, sense-making device that inspires the change in action in the desired direction, even then it will be necessary to orchestrate the generation of that new order by managing the dynamics of the emerging process.

Words can indeed create worlds but changing behaviour as to make this world come true, is the second part of the story that needs specific attention. Without creating the possibility for action and without enabling the process to emerge on the longer term, no change will happen. And this is exactly the reason why we suggest that organizations can and have to play a pioneering role in the shifting society. It is our conviction that to realise emergence in a sustainable way, a key actor (a person, an organization or a responsible network) is needed to enable and manage the processes. Even while one can not imagine what will happen, what should be clear is the collective direction that is more wanted than the existing situation and the translation of this direction in for example the HRM-instruments. We realize that in the two central cases in this study, the evolution could only be so positive while in

both situations the CEO and the mayor were big supporters of collective creativity. Without this natural and enduring support for collective creativity, no one tagline can realize emerging processes as they can only be the effect of changing micro-processes.

'Organizational' emergence by design

We have evaluated the complexity-inspired design method of imagineering in the context of reframing value creation in existing organizational settings and doing so we question the believe of Lane et al. (2011: 4) in the European research 'Emergence by Design', that it is 'extremely difficult' to resolve today's grave meta-crisis 'via the economic and political processes' and that therefore the leadership of these innovation processes should be with public actors instead of existing economic and political actors. We agree with the statement that the shift to cope with today's grave meta-crisis is extremely challenging but it is our vision that the development of know-how with existing actors can play a significant role. We think that both, new public actors and knowledgeable existing actors will take the lead in the shift to orchestrate emerging processes in societal more wanted directions. We think that it is in the first place 'another style of swimming' that organizations have to learn than that we rely upon new actors for building a 'better' world.

Organizational actors have or can take the authority and the tools to orchestrate these emerging processes to give the emerging process a sustainable character. Organizations have the structures and the tools to manage (up to a certain level) the dynamics of fluctuation, recombination, positive feedback and stabilisation in the value creating networks in which they operate. Organizations can articulate their core values, they can systemically reframe their value creating identity and they have the tools to foster the wanted change in behaviour, in relevance and relationships and they can keep people on track to collectively realise sustainable change. But it is true that our existing frames such as 'organizations', 'social innovation' or 'business innovation' keep us locked in our traditional settings while what we need is (mostly) 'systemic innovation' or what Mulgan (2013) calls popularly 'joined-up innovation' (what we like to call more actively 'joining-up' innovation) and this is a field that extends beyond the individual organization.

Systemic innovation or 'joining-up' innovation

At the moment we are confronted with massive systemic (Reynolds, 2012) failure, failure that is spread throughout, failure that affects the whole system. As Mulgan (2013), the CEO of Nesta (the UK innovation leading organization) explains: "a widespread perception that many of the systems supporting daily life need radical overhaul". Financial systems, health systems, food systems, energy systems, political systems and school systems to name a few important ones, have proven good at delivering stability for a very long time but are under big pressure now and in

urgent need for systemic innovation. The interconnected nature of our world means that innovation has to be much more systemic in nature. Innovation needs to be more holistic and 'joining-up'. To cope with systemic failure change should be more 'emergent' bottom-up (Mulgan, 2013).

Mulgan (2013:7) defines systemic innovation as "an interconnected set of innovations, where each influences the other, with innovation both in the parts of the system and in the ways in which they interconnect". Mulgan adds to this that innovation tools such as crowd-sourcing shouldn't be seen as systemic innovation as the use of the tool might not have systemic impacts. Innovation is systemic when changes in one part of the system affect other parts of the system as for example in the case of the electric car where the introduction of these cars also asks for changes in the distribution and maintenance infrastructure.

Imagineering and systemic, 'joining-up' innovation

Reframing value creation, the transformation of the enterprise logic can be seen as systemic innovation. And imagineering can be seen as a systemic design approach to cope with growing complexity by effectuating 'joining-up innovation'. But as we only studied the effects of the design approach in an organizational context, we cannot answer the question whether the design approach of imagineering might work in a broader societal context to realize emergence. As far as we can see from our research, the embedding of the reframed identity in the HRM-instruments is essential in giving the emergent process a sustainable character. Words or narrative artifacts on themselves seem to be essential to create the narrative infrastructure in which reflective dialogue can emerge but we are convinced that the second part of the story, the embedding in the identity of an organization is crucial in keeping the process on the expected quality level and to give the process a sustainable character. So, in our perspective, organizations play a crucial role, also in realizing systemic innovation.

What then can be said to be the unique contribution of this study? Organizational emergence and systemic change are not new at all. They have always happened in history. For example: Health services are transformed by a succession of organizational and medical (r) evolutions. The rise of the mobile phone effectuated systemic innovation in many fields and renewable energy is now effectuating systemic innovation. But as these examples show, most often a technology lies at the origin of systemic innovation. The main contribution of this study to science, we think, in all its simplicity, is the way this study articulates the relationship between imagination and collective creativity as the resource for generating new order in society and the way this study embeds the method in the available literature. The fact that the mechanism of the movie-industry to foster collective creativity can be transferred to other industries to foster collective creativity in an envisioned direction in order to

cope with growing complexity, is the essential contribution of this study. It will be evident that this is just a first pioneering study and that more research is needed to further this thinking in action. The fact that the relationship between imagination and collective creativity is translated in a design method makes instrumental how we can design 'the other way around', not designing a solution but designing for evolution, designing with an open end in an emerging mode.

The imagineering design method makes it possible for organizations
- to liberate innovation and creativity in light of the societal shift in value creation;
- to see strategy as an instrument for constructing the future of humanity at the same time that it helps to constructs the future of an organization;
- to enable all kind of stakeholders to become co-designers of their own future, which allows for integrating engagement and existing expertise, also from outside the company;
- to change patterns in an early stage of the process when it becomes evident that the designed path might lead to negative consequences for society and
- to organise innovation processes in a pro-active way in value creating networks in society as it allows for steering social processes in desired directions, at least, in the context of the shift in value creation while this is the focus with which we tested the method so far.

According to our research, complexity science is a uniquely interesting lens to study processes of emergence and systemic innovation. Even while some authors such as Mulgan (2013:8) argue that complexity is 'a field very short on testable hypotheses' and that it 'hasn't yet lived up to earlier promises that it would transform other fields', we think that our research is an argument in the opposite direction. In a recent HBR Blog entitled 'Why managers haven't embraced complexity', Straub (2013) sees three reasons for this:
- Complexity wasn't a 'convenient reality' given managers' desire for control;
- Technology was not yet powerful enough to capture much complexity in the 1980's and 90's when complexity thinkers started to turn their attention to the economy and to organizations;
- The prospect of non-human decision-making is unnerving. In the meantime however, most scientists and managers agree on the fact that massive computer power is not a sufficient condition for taking over sense-making and decision-making while sense-making is always informed by values.

So, with growing complexity and most of the fear for complexity science solved, Straub concludes that times are changing and that managers now 'should get ready to face the full complexity of their organizations and economic environments and, if not control them, learn how to intervene with deliberate, positive effect. Embracing complexity will not make their jobs easier, but it is cognition of reality, and an

idea whose time has come'. After 'Shaping the future' (2011) and 'Capitalism 2.0, New horizons for managers' (2012), the Fifth annual Global Drucker Forum (2013), a leading conference for top-executives and scientists together, this year has the simple title of 'Managing Complexity'.

It is our conviction that complexity science offers a rich complementary resource for studying and understanding today's organizational processes in the connected society with its intrinsic complexity and for designing for the evolution of non-linear, dynamic living systems. Therefore we now answer the research questions we articulated in chapter 1.

7.2 Research conclusions

7.2.1 What is the complexity perspective and in what way does it complement our thinking and acting about change, organization development and transformation?

From chapter 2 and 3 it became evident that complexity science provides us with a fundamentally different perspective, a much more dynamic perspective, to study change and transformation compared to the conventional organizational theory. While conventional models treat organizations as equilibrium-seeking entities that can change incrementally within the limits of rationality, complex models, provide a framework of understanding discontinuous organization transformation as a relatively rapid transition from one dynamical equilibrium to another dynamical equilibrium of a higher type that allows for functioning in a more complex environment. While conventional models in essence work with 'closed systems' and treat (organizational) change as exceptional, complexity science in essence works with open systems and treats change and evolution as 'normal'. Instead of trying to understand why change happens, the complexity perspective provides another scientific frame that is oriented towards understanding and explaining why and how (new) order emerges.

As such complexity science is revolutionizing how we see the world and especially how we think about change in complex dynamic systems. In this kind of systems our traditional views of cause-and-effect relations, our linear worldview in which the output of a system is proportional to its input, falls short. Reality in a complex world is dynamic and unpredictable, exhibiting nonlinear patterns and this asks for rethinking the way we try to understand, research and intervene away from our conventional mechanistic logic towards a logic of living systems that evolve from one dynamic state to the next, sustainable one. Complexity science offers a perspective to understand and enable value creation in an emergent mode instead of keep-

ing us locked in the reductionist mode which is more effective in understanding value capturing than value creation. This complementary perspective provides a scientifically grounded basis for seeing change as an ongoing process that is organizational life, for seeing order as something to be generated and for accepting that sometimes seemingly small events in a system can be amplified to evoke global change.

Especially the model of dissipative structures (a model we discuss in section 3.4.3), based on the principle of 'order through fluctuation', provides a framework for rethinking organization transformation as organizational emergence and to approach the phenomenon from a design perspective as the model proves to have prescriptive potential. This model has been validated several times in organization studies, as well in explanatory research as in design research. MacIntosh and MacLean (1999, 2001) already used this model to build their prescriptive model of 'conditioned emergence'. Combining the insights from this model and the insight of McKelvey (2004) on 'adaptive tension', we have built a design method. The design method of imagineering is in essence based on the design of an adaptive tension engine that evokes self-organization in the emerging mode by appealing to the imagination of involved stakeholders in order to foster collective creativity.

According to Goldstein (2011), a leading scholar in the field of emergence in complex systems, there is a need to assess the varied constructional approaches that are possible to guide organizational emergence. This study has presented and evaluated such a constructional design approach, the imagineering design method, a method we developed and experimented with in coping with the complex problem of enterprise logic transformation.

Besides of shifting our perspective on change and transformation, the complexity perspective also shifts our focus of management in general

- from seeking answers towards making sense of the situation in dialogical processes;
- from seeing departments and strategic business units separately, towards looking across the parts and at the system as a whole;
- from being oriented to entities and results towards being oriented to processes and dynamics;
- from predicting and forecasting the future to designing the future direction in an inspiring way;
- from finding the ultimate organization structure towards keeping the structure fluid and adaptive;
- from being blinded by the limits of the organization towards unleashing the dynamic potential of the broader system.

7.2.2 What is organizational emergence and is it feasible to implement reflexive emergence as imaginative emergence?

Despite the scientific interest in the concept of emergence, it is still not clear what the term denotes or, more important, how order emerges in nature (Corning, 2012). The most elaborate recent definition is the one provided by Goldstein (1999) in the inaugural issue of Emergence: 'Emergence is the arising of novel and coherent structures, patterns and properties during the process of self-organization in complex systems'. The most concise recent definition of organizational emergence which Lichtenstein (2013) calls generative emergence is: 'The coming-into-being of a sustainable dynamic state'. Emergence then is the process of evolving to a more complex way of being as to be able to function in a sustainable way in a more complex environment.

Studying emergence in human organizations, recently Goldspink and Kay (2010:47) argue philosophically about the general failure in history "to distinguish between the mechanisms of emergence present in systems comprised of simple material or biological agents and those associated with systems comprised of human actors". They argue that "it is reasonable to expect that what can emerge changes as the fundamental characteristics of the agent change. Human agents are distinctive in the ability to distinguish 'self' from 'other' and in so doing to reflexively interact with our environment". Not making this distinction 'limits our ability to develop a coherent understanding of organization'.

On this suggestion to differentiate between reflexive and non-reflexive emergence, we have build our argument to suggest the existence of 'imaginative emergence' as being a special case of reflexive emergence. By adding to the definition of reflexive emergence that the agents in the system are not only self-aware and linguistically capable but that they, on top are capable to see things that are not there yet, we suggest that it makes sense to specify 'imaginative emergence' as a specific case of reflexive emergence in human systems. We argue that it is this capability of agents to act upon their imagination that is essential in generating new order as the creation of new patterns rests on imagination and not on logic. On top, it is by appealing to the imagination of the individual agents that the rich process of collective creativity can emerge in the interactions of the collective. Language and a linguistic element strategically designed in the narrative mode, is presented in the design method as being essential in enabling this process in a sustainable way.

7.2.3 Is it feasible to design for organizational emergence?

Coming at the end of this study we dare to say that it is definitely feasible to design for organizational emergence, but that designing to cope with complexity should be

done 'the complex way': designing for emergence is a matter of evoking processes in context (conscious about concepts such as the sensitivity of initial conditions and so on) instead of controlling processes. It is a matter of igniting and framing collective creativity in a strategically envisioned direction instead of designing solutions.

Effectuating emergence is not new. We do this as humanity as long as history exists as prove our cities and our culture and all other creations that emerged on people building on one another's creative ideas but we did this predominantly unconscious (and one can discuss whether we should call the things we do unconsciously 'design') and so far we did this on a rather local scale as the big global cultural differences testify. Now that we are globally connected, we are enabled to design strategically on a much larger scale and at a much faster pace in directions we judge as being more desirable. But at this very moment that we are globally connected, we are confronted drastically with the limits and risks of our conventional way of designing. So, entering this world of designing to cope with growing complexity, the answer on this question is 'yes, we can' but we have to take into consideration serious conditions. We explain both parts of the answer.

In designing for organizational emergence one crucial step that has been made very recently by complexity scholars is the identification of two distinct drivers of emergence: far-from-equilibrium dynamics that trigger order creation, and adaptive tension (McKelvey, 2004) which can push a system toward instability, leading to the emergence of new order. While the first refers to a state of being, the second refers to a 'catalyst', the driver that initiates a dynamic state that leads to emergence and order creation. It is this last driver that we argue in this study that can be designed in human systems in order to evoke imaginative emergence.

Adaptive tension' according to McKelvey (2004) is the energy differential between lower dynamic state and higher level dynamic state which evokes the dynamics of dissipative structures: fluctuation, re-combination, positive feedback and stabilization in natural systems. In more recent work on emergence in human settings, entrepreneurs are seen as the creators of adaptive tension that drives processes of emergence. Doing so there is 'a place for man' in Prigogine's theory of self-organization by the use of the 'imagination' (Loasby, 2007: 1743). Based on the role of the entrepreneur as a creator of adaptive tension, Lichtenstein (2009) suggests speaking about 'opportunity tension' as an alternative concept for 'adaptive tension' as this concept also captures the entrepreneurial passion that is inherent in the drive for order creation and emergence. It is this internally felt opportunity tension which pushes an agent to act. Along Lichtenstein (2009) opportunity tension is the key driver of entrepreneurial order creation. In an organizational context, Lichtenstein et al. (2007) define 'opportunity tension' as the difference an entrepreneur perceives between a system's current and desired state. It are the complexity scholars Maguire

and McKelvey (1999:16) who argue explicitly about the role of CEO's in managing the 'adaptive tension engine'.

We argue in this study that it is the design of the 'adaptive tension engine' (which in our case of enterprise logic transformation consisted in the redesign of the business conception to reframe value creation systemically) that can evoke organizational emergence under the right circumstances such as sensitivity of initial conditions et cetera. We illustrated this argument in this study predominantly with the design work in two experimental, empirical cases: the case of Antwerp in which we redesigned the logo strategically to evoke emergence in a more open-minded, creative direction and the case of Veritas in which we redesigned the logo strategically to evoke emergence in the direction of self-expression and creativity. Aided by the digitalization in society it is possible that this movement of new order creation that starts within an organization can emerge fast, far and flexible crossing the boarders of departments and of the original organization. In a societal perspective: Aided by the digitalization in society constructs developed at one side of the globe such as the 'bob-campaign' or 'pop-up gardens' or 'zero-miles food' (Manzini and Vezzoli, 2003), can now spread 'the butterfly-way'. This won't happen as drastically as this last concept manifests itself in nature while in human systems many 'limiting conditions' will manifest themselves such as cultural acceptance and sense of urgency. These conditions in human systems are definitely moderating the phenomenon.

So, yes we can design for organizational emergence making use of the construct of the 'adaptive tension engine' and we can do so more effectively than ever before but doing so we have to take into consideration serious conditions. The fact that we are ever more confronted with the limits of our conventional way of designing makes that we are urged to think and work preferably on 'behavioral change' instead of designing ever more products to satisfy needs with a short-term perspective. Imagineering is a typical method that tries to influence behavior of individual agents in their collective context. From designing unconsciously for emergence, we now have to direct our design intentions consciously in directions that are desirable for society at large taking into consideration the threats that we are facing globally as humanity. To say it with the words of John Thackara (2002): "As we fill the world with complex technical systems – on top of the natural and social systems already here – old approaches to design simply don't work".

According to Young (2012) the idea that design has a responsibility to society and environment was probably first championed by Victor Papanek who argued that "Design has become the most powerful tool with which man shapes his tools and environments (and, by extension, society and himself)". Now we start to realize that there is this possibility to design the other way around: not designing solutions but designing for evolution by inspiring behavioral change.

We can conclude that it is not only feasible to design for organizational emergence but that there is also an urgent need to design for organizational emergence. It will be evident that there is still an enormous work to do in this direction. Becoming aware of how we possibly can design for organizational emergence is only a (very small) first step in mastering this ability. It is interesting to see that this opportunity and this ability manifest themselves on the very moment in time that there is an urgent need to master ourselves in this direction.

7.2.4 How can we design for organizational emergence? (The articulation of the imagineering design method)

Central in our approach is the design of an adaptive tension engine. We argue that designing an effective adaptive tension engine can evoke organizational emergence: it can evoke processes that make an organization transform from one dynamic state to a more complex one in a sustainable way. This is the design approach we call 'imagineering': the design or use of (new) imaginative image (as an adaptive tension engine) to reframe a complex situation in order to inspire and empower collective creativity in generating new order 'the self-organizing way' which should preferably be used in a societal more wanted direction but this, of course, is in the hands of the user of the design approach.

We have answered this question in two steps (in chapter 4): first we articulated the criteria for the adaptive tension engine and second we described the process of designing and using the adaptive tension engine in an effective way. We summarize our work here using these two steps.

Criteria for designing the 'adaptive tension engine' (in the context of enterprise logic transformation)
In essence the design method consists in the design of the 'adaptive/opportunity tension engine' that has the objective to effectuate emerging self-organization by reframing the dialogue in a value creating network. To do so in the context of enterprise logic transformation, the artifact is designed along two lines (that each consist of two aspects): a content-line and a process line. Content-wise the artifact should reframe the dialogue from a point of view of relevance and relationships. The combination of both can lead to effective behavioral change of the individual agents in the context of the collective:

– RELEVANCE: (the strategic direction) from being oriented in the first place on shareholder value the organization admits to see shareholder value as a consequence of making sense for society at large. Shareholder value as such is important but can only be the result of creating value for society at large. In a transparent society with a co-creative logic shareholder value as primary objective is questionable as for example external stakeholders such as consumers

won't be interested in this objective and as a consequence won't feel interested in possible co-creation. Relevance for society at large on the contrary can inspire stakeholders to act;
– RELATIONSHIPS: from seeing consumers as passive destructors of value towards seeing, enabling and treating them as active participants in value creation is an essential shift in enterprise logic.

Process-wise the artifact should reframe the dialogue from a point of view of engagement and the collective identity. Therefore the artifact is designed in the narrative mode and is integrated in the identity.
– THE NARRATIVE MODE: the artifact is constructed in the narrative mode because of its heuristic and holistic properties: it invites for interpretation (heuristic property) and engages not just the logic but also the emotions of working in a collective context (holistic property). The narrative mode speaks to the imagination of the individual agents and the imagination is, as we discussed in chapter 4, closely linked with the emotional world and it makes people engaged to 'reach out' of their traditional way of doing things.
– INTEGRATED IN THE IDENTITY: Articulating the artifact as a recognizable identity 'promise' is essential in effectuating sustainable change as there will definitely be lots of pressure to reverse to the former 'known' situation as not all people all the time are interested to change routines and the result of the process depends, as a consequence, from the collective intentions. In our experimental, empirical research we added the artifact to the existing logo as a strategic one-liner to change the logic of value creation in the network. Most probably there are also other possibilities to realize comparable results but we discovered this way of stabilizing the identity on a higher level of dynamic state as a very powerful one to also enable the not always evident process of collective creativity.
  Besides of this we pointed to the importance of integrating the 'invitation' in the HRM-instruments such as performance interviews as to integrate the change not only in the identity of the collective but also in the micro-behavior of the individual employees. The most important objective is that the reorientation becomes a clear collective engagement of which also external stakeholder are aware and can see their chances to develop their own co-creation ideas in case the original company allows them to do so or to become a co-designer of the process under the lead of the original actor.

About the working mechanism behind the adaptive tension engine we like to mention shortly the importance of the combination of 'simple rules' and cognition in emerging self-organization. We won't go into cognition (see section 4.2 and 4.3) once more in these research conclusions but we would like to mention the importance of 'simple rules' here that should be 'interwoven' in the artifact and that we, in fact, articulate in the criteria above. One of the characteristics of complex social systems

namely is the need to identify basic rules which guides the interactions among the individual agents in the collective. They are continually tested in the daily interactions and are reinforced when they prove to work. Rules help to develop and stabilize social settings. The adaptive tension engine functions in essence on bringing in a new (basic) rule, in our study: the basic rule to invite other stakeholders as participants in relevant value creation.

It is the adaptive tension engine that brings an organization out of its equilibrium zone and that shows the individual agents a new, relevant collective innovation horizon. It is this new rule articulated in the adaptive tension engine that is central in generating new order. Formulated in the narrative mode, the adaptive tension engine creates the necessary 'space' for the individual agents to explore in processes of collective creativity, new behavior and to experiment with own interpretations in daily situations based on their imagination. As such it shows that the evolution in society from the industrial, sequential, exchange mode of value creation towards the networked, simultaneous mode of value co-creation offers an enormous opportunity to realize sustainable change on all levels of value creation in society while it enables and makes sense to reformulate the basic relational rule of interaction in a relevant direction. In imagineering we formulate this rule in a positive way as to inspire (new) action. As we already mentioned in chapter 4: negativity works especially strong on psychological perceptions while positivity leads to deeds.

The design process of imagineering

In order to design the adaptive tension engine (the artifact) and to make it work, we developed a complexity-based design approach by extending every phase of the conventional design method (inspiration, ideation and implementation) with essential insights from complexity science, making it a didactical interesting A-B, C-D, E-F –process:

- INSPIRATION: We extended the A-nalysis of the inspiration phase with a B-rooding phase in which 'brooding' on relationships and interactions happens as to discover the generative potential (the 'magic' or else: 'the Wikipedia-power') of the organization in order to discover the 'field' in which the organization is able to generate and build value in a unique way for itself at the same time value for society at large in a co-creative way (discovering the strategic direction);
- IDEATION: We extended the C-reation phase in which the future is envisioned in that field of relevance with the D-esign of an imaginative narrative, the design of the 'adaptive/opportunity tension engine' in order to evoke the wanted processes. The imaginative narrative should preferably be a linguistic element as to inspire and enable the transformation of the dialogue;
- IMPLEMENTATION: We extended the E-xperience platform which is an outline of all the point of interactions of the organization with the broader context of the value creating network in which it tries to orchestrate value creation with

F-ollowing-up and F-ollowing chapters as to integrate the dynamics of dissipative structures that should have the attention of the management in order to give the entrepreneurial processes a sustainable character on the longer term. These dynamics allow linking the imagineering process to the broader management context of daily organizational life.

The dynamics of dissipative structures

- (Regular) Fluctuation dynamic: new initiatives, new chapters that keep the 'magic' alive by keeping the transformative dialogue going. This dynamic can be linked to the broader context of keeping an organization adaptive strategically;
- Re-combination dynamic: new initiatives will often be a re-combination of existing resources in the value creating network. This dynamic can be linked to the constructionist principle. The objective is to inspire the collective to keep going in exploring and learning by reflecting;
- Positive Feedback: this will keep the individual agents in the creative mode as they will continue to look for new opportunities to keep the 'magic' going. This dynamic can be linked to the progress principle. The intention is to amplify constructive actions through positive feedback loops;
- Stabilization: The creation of instruments that make the intangible ('magic') tangible and that translates it in the individual behavior as to manage the dynamics of imaginative emergence. For example the articulation of a 'declaration of values' and the use of that instrument in the personal assessment interviews and one can also think of the design of an 'inspirational guide' as to invite all kind of stakeholders to reflect and to participate creatively in the entrepreneurial co-creation processes with more information and inspiration than the adaptive tension is able to evoke. This dynamic can be linked with the learning principle as to approach change for and from creation as well on a macro- as on a micro-level.

Based on this study we conclude that, in the context of enterprise logic transformation, a consistent method has been developed that meet important design characteristics. The application of the method in situations with a big sense of urgency, as was the case in both of our cases, resulted indeed in processes of self-organization in a desired direction. The future will show whether the realized change is sustainable on an even longer term but it will also show what happens in case the adaptive tension engine is changed.

7.2.5 How can the effectiveness of the design method be assessed? What are the criteria for evaluation?

As the essence of emergence is about the evolution of a system towards a new sustainable dynamic state, a state which makes the system more suitable for coping with a more complex environment, 'effectiveness' is in the first place a matter of a

nominal/categorical shift. It is about a phase shift and not about a shift that can be 'measured' as such on a continuous/ratio scale. Financial results, although they are of course important, can obscure reality as they are not necessarily prove of a transformed organization. Therefore we discuss the conventional 'measurable' results after having discussed the phase shift.

How then can we assess the effectiveness of the design method that intents to effectuate a phase shift? This kind of effectiveness should be evaluated in the context of a whole research program while a single study mostly does not adequately address a complex problem area. It is in the context of such a research program that the informed researcher can evaluate whether an organization can cope better with the internal and external complexity and which principles and mechanisms realize possibly causal effects.

Evaluating the effectiveness of a design method asks for working with multiple companies through different stages and modes of investigation. Each study in such a program exposes the researcher to new aspects of the dynamics of the problem field and the solution concept in its context. Each study brings new questions, new answers and new learnings. Each study builds on the previous one cumulatively and recursively. The research programmed this way can eventually involve enough cases with sufficient variation to learn about the many features and dynamics of complex, dynamic human systems and the boundary conditions of the knowledge.

A systematic comparative case based approach can help in understanding the different 'what's' that work in relation to the achievement of objectives. This study is part of such a broader research program but for this study, in essence, we used our first two natural cases and we analyzed them using process tracing (process induction and process verification/pattern matching) and cross case comparison in order to identify and test 'causal mechanisms' (causal effects and causal processes). To assess the effectiveness of the intervention we constructed a conceptual model based on a broad literature study in combination with our former experiences. We call this model, if you pardon the pun, 'the stairway to heaven' as it integrates causal mechanisms and the dynamics of dissipative structures that lead from strategic design towards organizational emergence in human systems.

Using this model we can conclude that the causal mechanisms and dynamics of dissipative structures are recognizable in both natural experiments. The presented design method of imagineering proved to be successful in both our natural experiments in revitalizing an organization be it a governmental collective or a commercial collective, either while intervening more unconsciously (not explaining the imagineering complexity-based approach) as in the case of Antwerp as in the more conscious approach of Veritas. The experiments and also the other smaller case-

material that we used in this study, prove that behavior and routines can change when evoked in the right way and this, of course, is a mayor discovery as it is generally assumed that behavior is very hard to change. Applying the method shows that it is possible to transform the enterprise logic by 'managing the adaptive tension engine'. It can be said that a strategic design/imaginative artifact, well designed, can be effective in evoking a process of emergence towards a more complex form of functioning and that as such, the design approach of imagineering is a very valuable complementary approach to the existing planning and control mode in coping with complex problems.

Part of the explanation of the realized shift can be attributed to 'the positive approach' inherent in the design method. In chapter 5 we referred to the evidence organization scholars found between effectiveness and positivity on an organizational level. These scholars report on three sources of explanation why positive practices elevate performance in human systems: Positive practices provide

- amplifying effects: positive practices have an amplifying effect because of their association with positive emotions and with social capital;
- buffering effects: they buffer the organization from the negative effects of trauma or distress;
- heliotropic effects: they possess attributes consistent with heliotropism, the fact that all living systems are attracted toward positive energy and away from negative energy.

Aligned with this correlation between effectiveness and positivity, is the effect of 'good' and 'bad' concerning psychological reactions and actionability. While on an individual level it is generally accepted that 'bad is stronger than good', Wang, Galinsky and Murnighan (2009) found out that this general accepted truth is only partly true. In three controlled experiments they found out that the negative appears to be stronger than good in influencing psychological reactions whereas the positive seems to be stronger than bad in influencing behavior.

Besides of the positivity of the approach and the link between 'good' and action, the effectiveness of the method can be understood by the fact that the narrative artifact/ the adaptive tension engine, functions as a flexible coordinating mechanism and invites for the creation of horizontal relationships, also between departments which makes innovation (and recombination) more evident. This structural shift in the direction of more horizontal relationships will also be recognizable in the changing structures of the organization itself, which, in essence, is a prove stricto sensu, of organizational emergence: they illustrate the micro-macro effect that is essential in the difference between self-organization and emergence.

Besides of the growth in horizontal relationships, the effectiveness can also be understood by the fact that individual actors on all levels of the organization are invited and enabled to make their own interpretations in their daily, creative actions. What was remarkable on the moment of interviewing was the fact that in both our experimental situations, we met in general very happy and relaxed employees, a situation that was remarkably different from the situation we met some ten years ago at the start of the intervention. Even while we did not measure 'work engagement' formally, we dare to say that the statements that are used in the 'The Utrecht Work Engagement Scale (UWES)' represent strongly the kind of statements that impressed us while doing the interviews a year ago in both the natural experiments. But again it is very dangerous to speak about this very linear interpretation of effects while there are so many elements influencing the evolution in the whole period of ten years that in fact, it makes very little sense to use them here in our general research conclusion.

Taken into account these firm limitations on causality, we assessed the method also in the conventional, 'measurable' way. We evaluated whether the organization is now able to function effectively on that more complex level in terms of satisfaction of as well internal as external stakeholders; attractiveness in the labour market; and turnover. On all of these three criteria, the results were convincingly positive: in Antwerp there was a clear (measured) growth in proudness of the inhabitants and an even bigger diminishing of negativity. The same is reported in the interviews concerning the internal stakeholders. In the case Veritas, the collective positive evolution can be seen in the growing amount of shops positioned on A-locations, the growing turn over in general and the growing profit margins. In both cases there was a significant amelioration in the attractiveness in the labor market as in both cases employees were mentioning this as one of the big changes they saw in the previous years (without us asking in this direction). Once more, in interpreting these results one should take care of the issue of causality as it is clear that lots of elements were influencing these 'effects' in a period of nearly ten years.

We conclude that, while all individual, creative actions happen in a strategic direction, this strategic acting of the individual agents makes the organization more adaptive in a turbulent environment and can emerge in a positive collective result via the liberation of the collective creativity.

7.3 Closing discussion on implications

The development of a design approach to liberate collective creativity in a strategically envisioned direction has of course implications for many fields and in many situations but it is important to realize that the method has been developed to cope

with complex problems in the first place. It is important, as we already explained on the first page of this study to make a difference between working with complex problems and working with complicated problems. The design approach of imagineering is developed to cope more effectively with complex problems, problems such as organizational change and transformation and problems in the context of strategic thinking and acting. In coping with complicated problems, problems that are tough but not necessarily involve many perspectives and relationships or interactions, the mechanistic, linear logic can be still more effective. It is because of the growing complexity in society that more problems on the management table become complex in nature and as such ask for a complexity-inspired design approach, an approach in which the engagement of collective creativity can be more effective than the 'simple' approach of planning and controlling.

Below we will discuss the implications for four fields of which we think it is most evident that the method has implications in coping with complex problems. We discuss consecutively the implications for the field of
- organization development or systemic innovation;
- strategic thinking;
- design thinking.

And finally we discuss the implications of the design approach for management education.

Table 7.1 Two complementary logics in value creation

	Mechanistic logic	Organic logic
Context	Stable and predictable environment	Dynamic and uncertain environment
Kind of problems	Simple and complicated problems in closed systems	Complex problems in open systems
Essence	Planning and controlling	Igniting and framing collective creativity as to foster self-organization and emergence
Key influences	Newtonian mechanistic logic	Complexity science logic
Organization development	*Quantity oriented*	*Quality oriented*
Strategic thinking	*Behavioral oriented and controlling action*	*Imagination oriented and enabling creative action*
Design thinking	*Solution oriented*	*Evolution oriented*
Management Education	*Efficiency oriented Linear thinking*	*Effectiveness oriented Complex thinking*

7.3.1 Implications for our thinking about organization development (and systemic innovation)

Having developed a complexity-inspired design approach to cope with complex problems alters the way we can orchestrate organizational development work such as for example humanitarian work or systemic innovation. We explain the implications of the design approach in both situations shortly.

Much of today's humanitarian development work is still trapped in the paradigm of predictability, linear causality and is managed through top-down command and control (Ramalingam and Jones, 2008). In humanitarian work for example this resulted in bringing solutions to the regions that were in need for help. This way of working kept these regions often dependent on solutions instead of installing a complexity-based evolutionary approach that empowers people, stimulates local ownership by participation and can lead to independency on the longer term.

What the imagineering design approach adds to this theoretical complexity-based approach is that by designing a culture-based imaginative narrative, the dialogical infrastructure is created that can appeal to the imagination and the emotions of all involved actors as to engage in a process of strategically framed collective creativity. Just as in other situations, the engagement of collective creativity can lead to unexpected bigger or smaller solutions that together emerge in joining-up thinking and acting. On top, the dimension of engagement and collectivity augments the potentiality of sustainability of the emerging processes on the longer term.

From a complexity perspective, 'aid' should destabilize, as to generate new order in the system (Fowler, 2008). From an imagineering perspective, 'aid' should indeed destabilize but it should at the same time challenge the individual actor to see a new collective horizon and to see how individuals can start to act (based on simple rules) as to collectively and interactively engage in the 'joining-up' movement. The joining-up movement should allow the system to reach a new dynamic state of functioning at a higher state of complexity that benefits the poor as required.

In the context of systemic innovation in the sense of reframing value creation as studied in this thesis, the primary goal of the organization is no longer to survive through maximization of profits, but 'to make possible a fuller and more creative life for all members of the company and thus to maximize the chances of appropriate collective response to perpetually changing circumstances. The shift of focus here is towards quality and away from quantity as the goal for a more mature society' (Goodwin, 1997:118). It is this shift towards more relevance that can ignite participation but this will most often only happen when we are able to communicate the shift

in an appealing way and when we can manage the emerging process in a way that the level of expected quality and integrity can be safeguarded.

The design approach of imagineering makes both these complexity-based approaches 'workable'.

7.3.1 Implications for strategic thinking

According to Romme and Barrett (2010, 2009) traditional modes of crafting strategy have been overly rational and partial in nature and a major deficiency of traditional strategy making is that most minds within the organization are not brought into the process. Traditional modes of strategizing are still largely dominated by the machine metaphor (Morgan, 1997). Nevertheless, many strategists nowadays start to agree on the fact that under highly complex circumstances, our traditional way of strategic thinking with its planning models and linear cause-effect relationships and predictable outcomes, falls short (Kurtz and Snowden, 2003). This thinking is ineffective when applied to a reality that is messy, unpredictable and impacted by multiple agencies and processes. Complexity, by contrast, draws attention to 'messiness', unpredictability, but also to the possibility to generate new order by processes of interaction and self-organization.

The complexity-inspired imagineering approach to strategizing then extends the strategy perspective towards the broader value creating network, including external stakeholders such as customers. By appealing to the imagination it also engages emotionally and evokes collective creativity of the members in a holistic way: people start to relate differently as well with internal stakeholders as with external stakeholders they start to formulate new answers in all kind of situations which, all together, generate new order. In the imagineering approach to strategizing a core-team in which the top-management, decides on the strategic direction for the organization but by translating the strategic direction in an imaginative artifact, the whole of the network is invited to co-design the future. Process-wise then, imagineering is first of all a top-down approach before it becomes a massive bottom-up or joining-up process. It is an alternative and complementary method for what Lane and Maxfield (1996) call 'strategizing under complexity'. Even while it is unlikely that this approach might cause a complete overhaul in the field, it might contribute to a gradual shift in thinking and practice away from the myopia of conventional planning towards this more learning-based approach that initiates strategy as bottom-up, collective and self-organizing processes in complex situations.

Table 7.2 Complementary perspectives on corporate strategy

Traditional perspectives on corporate strategy	A Complexity perspective on corporate strategy
A corporate-centric perspective: corporate executives play the most critical role in corporate strategy by shaping the overall course of action and the broad architecture of the business within firms.	Collaboration emerges from the self-interested interactions of individuals and individual business units (BU's). Strategy is not centrally determined by corporate executives but rather emerges from BU's or departments based on the collective creativity in those collectives.
Emphasis is on efficiency as the driver of competitive advantage and superior performance in relatively stable markets.	An emergent and process-driven character Strategy of simple rules as to co-evolve with the market
Emphasis is on the design of structures and incentives	Emphasis is on the design of processes (sometimes termed 'dynamic capabilities') to evoke collective creativity in order to recombine the firm's resources and co-evolve the firm with the environment.

It is important to insist on the fact that the complexity-based design approach of imagineering is complementary to regular processes of strategic planning. In situations that are predictable and stable such as situations were value creation is dominated by machinery (more industrial situations), conventional strategy might be preferable in some situations. In cases of uncertainty and complexity, situations for example where the effectiveness of value creation is depending predominantly on the effectiveness of humans, relying and directing their own initiatives in a desired direction that improves the collective well-being, the imagineering approach to strategizing is expected to work better. It is true that intended outcomes cannot be guaranteed while contingency and indeterminism matter. But this does not mean that all dedicated efforts to effect sustainable change in complex situations will fail. Altering our linear thinking about change and strategy in complex circumstances is a necessary starting point.

Finally, looking at the developments in the strategy literature, we can say that the imagineering approach of reframing value creation in the narrative mode is very much aligned with this thinking. We refer to the whole stream of strategy process research in which action is seen as primarily creative, rather than rational or normative, and to the behavioral oriented research which is oriented to the psychological underpinnings of a given phenomenon, where psychological broadly denotes "being about mental processes" (Gavetti, 2012). We explain both shortly.

MacLean and MacIntosh (2012) articulate the 'creative action perspective' as an alternative that takes into account typically 'human' issues that are overlooked by the

conventional rational or normative perspectives on strategic change, issues such as intention, expression and relating. MacLean and MacIntosh (2012) build their creative action theory of strategic change on the work of the German sociologist, Hans Joas. Joas (1996) claims that action is the way human beings exist in the world and he introduces the concept of 'creative action' as an alternative to rational and normative conceptions of action. Doing so he tries to liberate the social sciences from the dominance of conventional science approaches. In this context "a rational view on action connotes a sense in which an underlying, optimising calculation is being made, whilst a normative view implies that action is seen primarily as being both enabled and constrained by group norms" (MacIntosh and MacLean, 2012:83). Joas (1996) argues the need for a new theory, human action, in which creativity is regarded as the primary facet of human action. In the creative action perspective on strategic change then, the focus is on interaction and relationships as the primary source of creative phenomenon. Strategic behaviour then becomes an emergent outcome of co-evolving and interacting players.

Concerning the work of Gavetti (2012) on strategy: Much of current mainstream thinking about strategy is locked into the overly strict assumption about rationality bounds. Gavetti identifies three behavioural failures (impediments that are mental in origin): rationality: the ability to identify opportunities; plasticity: the ability to act on opportunities; and shaping ability: the ability to legitimize opportunities and therefore "shape" or "construct" the opportunity space. If managers were better at managing mental processes, these 'failures' would not exist.

The construct of representation and what it takes to manage it are central in what Gavetti calls a Behavioural Theory of Strategy (BTS). Behavioural in this context refers to "being about mental processes". BTS promises nothing less than redefining the role of the strategic leader from this psychological perspective. In fact this view introduces an important change in the reasoning about strategy so far as it suggests that strategic leaders can and should create there own markets by deliberately influencing the external "reality" as represented by the fixed topography of the performance landscape. Firms can affect the processes of collective sense-making through symbolic as well as substantive actions. In this context Gavetti introduces the concepts of the associative mind and associative thinking in order to realise creative action. The basic structure of associative thinking has been revealed in chapter 4.

It is not surprising that the thinking about creative participation of stakeholders emerges at this moment in time as the transition in society from the industrial exchange mode of sequential value creation towards the liberation of simultaneous value creation in value networks is an important moment to realize change in organizations. New configurations are needed for the network society, configurations that allow structurally for creativity and innovation, but new configurations

are also the essence around which new order in organizational systems can be generated by changing action. That this action preferably should be creative action makes individual agents more engaged and it makes the organization more adaptive in times of growing complexity.

What the imagineering design approach adds to both these perspectives of creative action and mental reframing is both, the designed imaginative artefact and the management of the dynamics of dissipative structures which according to us, are important instrumental issues in realising sustainable change in the emerging mode. To keep people creatively involved, they need to be able to experiment collectively. Positive feedback, recombination, stabilization and regularly fluctuations are dynamics that are essential in making the implementation of the reframing work on the longer term. On top, the artefact articulated in the narrative mode augments the associative power and accommodates rather than reject the individual creative interpretation in the collective context. The articulation of the artefact gives the intended change efforts a perspective of engagement, stability and sustainability and it opens the organization for creative initiatives of external stakeholders too, something which we think is still massively neglected in recent thinking about strategy and strategic change.

7.3.2 Implications for design thinking

As growing complexity in society is realising a new landscape for value creation, a landscape in which sequential value creation is complemented and even surpassed by simultaneous value creation, the landscape of design is also changing (Sanders and Stappers, 2008; Kimbell, 2012, 2011; Sangiorgi, 2010; Meroni and Sangiorgi, 2011). Nowadays design is needed in all corners of society and should be executed, different from the design profession as we know it by now, by and with all kind of stakeholders. Within the design domain, it is being said (Lee, 2011) that service design is the one fastest rising higher education degree at the moment. Managers in business and policy are advised to develop a design attitude besides of their decision attitude (Boland and Collopy, 2004; Martin, 2009) as relying on existing recipes is no longer the best option in a structurally shifting society that is in big need for systemic innovation. In many cases, this design or design thinking is not as much about new material issues but about new relevance, new roles and new relationships and in that context it is about material changes too.

Complexity science then, offers a new perspective for design thinking, especially for design thinking in working with living, open systems. While conventionally design is embedded in the implicit or explicit assumption that systems behave in predictable ways, we know that most living systems don't. More than in the field of material design, design thinking in business and policy should also embrace

complexity science. To understand how to design to enable bottom-up emergent processes becomes a strategic factor for companies and organizations and a new competence for managers and leaders in the 21st century. Now that new technologies are available that are based on relationships, information sharing, collective problem solving and users' creativity, it is possible to rethink how we steer value creation in a very essential way. Now it is possible to rethink value creation from a point of view of relevance and relationships seeing all kind of stakeholders as participants in value creation by appealing to the imagination of the individual agents. This asks for designing 'the other way around': not designing 'blueprints' for change but designing 'igniters' that frame bottom-up processes, based on local interactions, strategically oriented in a societal more desirable direction.

Table 7.3 Complementary perspectives on Design Thinking

Traditional perspectives on design thinking	**Complexity perspectives on design thinking**
Solution-oriented. Mostly product- and sometimes process-oriented (f. ex. service innovation). Most often technical designers work with a clear and specified briefing derived from a political-organizational context. Growing complexity results in a shift towards 'co-design' (co-creation in design environments).	Evolution-oriented. Assumption that in some complex situations a solution-orientation can harm more than it can help. Imagination is essential in creating new connections and the creation of new connections is essential in generating new order. The 'solution' is deliberately left 'open'.
Closed systems thinking and classical systems thinking is used as resource for design thinking.	Open, dynamic systems. Complex systems thinking is used as a resource for design thinking.

The implications for design thinking in management are important. Based on our study we dare to say that the academic debate on design thinking in management needs some more subtlety than we are used to nowadays. We have argued that it is important to make a difference between design thinking in regard to closed systems and stable environments or open systems in dynamic environments. We are convinced that it is important that the design community reflects on the fact that it makes a difference whether one uses conventional design thinking or complex design thinking as a resource for design thinking. In today's debate on design thinking we are missing this nuance massively, not only in the context of design thinking in business but also in design thinking in the context of social (Brown and Wyatt, 2010) and systemic innovation.

Finally, looking at the developments in the design thinking literature on this very moment of growing complexity in society, we can say that the complexity-inspired design method of imagineering has much to offer to at least 'design thinking in

management'. As already mentioned, a growing amount of management problems is becoming complex because of growing connectivity and globalization. It is predominantly because of this evolution of growing complexity that the management field is looking into the direction of design thinking. Unfortunately in this turn towards design, it are the way of thinking of architects and the way of thinking of painters and other material designers that are often fascinating managers as is evident from having a rather conventional image of what design is/was about. As a consequence, it is this 'material way of designing' which is most often used as a metaphor to rethink managerial, decision making approaches. This then leads to a kind of 'design thinking myopia' which is not easy to avoid or to solve as in this 'turn towards design as a consequence of growing complexity', mostly two new fields have to be discovered: that of design and that of complexity science. Therefore it might be helpful to use another word in this situation and it is evident that the word imagineering can help solve this 'problem'.

We have already put forward with Hazy (2011) that it might be interesting to use another word in the context of design thinking in management in the context of growing complexity as the conventional word 'design' carries with it the potential of 'myopia': it is a statement that designers work with complex, wicked problems, while this is often about complex situations in solving complicated problems; and a false certainty: 'a design' is assumed to lead to a solution and even towards a 'material solution' in the perception of a layman. A design might be completed but the system in a highly uncertain, complex context, is never finished. Therefore the word 'imagineering', being a blend word of imagination and engineering, is better explicating that it is a design approach for working with human systems as it has an 'endless' association, it is never finished. Using another word makes obvious that imagineering is complementary to 'normal' design and that people educated as imagineers (organizational designers) to work with open systems should not be seen (necessarily) as regular, material designers and vice versa. Imagineers are a specific kind of designers, designers that makes use of the engine of the imagination (of the involved agents) in furthering processes of value creation, designers who think evolution instead of solution.

7.3.3 Implications for management education

Finally we discuss shortly the implications of the imagineering design approach for management education.

It is evident that growing complexity in society and the fact that we are increasingly confronted with systemic failure have implications for management education and for business schools (Karakas, 2009). Whereas the telescope and the microscope (r-) evolutionized the way people constructed reality with an emphasis on measurement

and quantification, the computer is having a similar effect today. According to Dent (1999:16) "These tools of intervention are our new sensory organs. Our reality changes as our ability to detect phenomena changes. […] many management education programs need to be changed to teach more holistic, perspectival, and mutually causal mindsets. Although changing mental models is often difficult, such flexibility is necessary in the demanding, global marketplace of today". We should however take care that 'design thinking' in management education gets the content it deserves and that it is more than a superficial copy-paste of the design field as it exists at the technical oriented universities.

From the imagineering design perspective we would like to add to this complexity-perspective, the importance of narrativity in coping with complexity and the importance of subjectivity in connection to values and ethics. This is definitely not an evident route for management education as already in education in general narrativity is often seen as 'decoration' instead of being an essential element in developing what Perkins (1994) calls 'reflective intelligence', a kind of intelligence that is crucial in coping with complexity.

Table 7.4 Complementary perspectives on Management Education

Traditional perspective on management education	**Complexity perspective on management education**
Industry oriented	Complemented by a systemic orientation
Decision thinking	Complemented by design thinking
Rationality and efficiency	Complemented by the importance of narrativity
Separating profit and non-profit, social innovation and business innovation	Values based thinking Business as a force for good
Centrality of 'recipes' and 'best practices'	Centrality of 'interaction' in problem solving and in education itself: Learning as a non-linear process.
Leadership as planning and controlling	Leaderships as inspiring and enabling

7.4 Limitations and challenges

Although the findings of this study strongly indicate that we can design for organizational emergence by designing to evoke collective creativity in the envisioned direction, one should take care with generalizing these results too quickly for several reasons: first of all because of the limited amount of cases on which this study is based and second because of the pioneering character of this study in the challenging triangle of management, complexity and design, an argument which we already announced in chapter 1. We explain both limitations.

Before generalizing the applicability of the method, one should realize that this study is predominantly based on the analysis in depth of only two cases that have been executed in a country as small as Belgium. This is quite a specific situation as in this case the media-landscape in the value creating network is also rather small which means that it is rather easy to co-create formats with them which makes communication easier than it might be for, for example, multi-national players. At the other hand, one should realise that single case studies and historical cases are indeed limited in generalisability, but they are often used to validate theories or as a first step in a broader comparative study. In good complexity-tradition, one has to start somewhere to make a joining-up movement possible. But it is true that we will only have a clear idea about the effectiveness of the method after it has been tested in many and different situations.

Second, one should realize that this study has a pioneering character. While it is generally accepted that the complexity perspective is a fruitful direction in coping with complexity, few researchers so far attempted to add to both the perspectives of management and complexity, the perspective of design. In that way, one should keep in mind the pioneering character of this work with all its inspiration but also its limitations. Along Rogers (2003) novel discoveries and paradigms (such as the complexity paradigm) typically emerge through the efforts of 'explorers' and they depend on 'pioneers' and 'settlers' for their further diffusion:

- Explorers represent a minute fraction of the research population and they are not overly concerned about context and application. Zimmerman (2009) argues that in complexity science, these explorers primarily have come from physics, biology, and mathematics and that they have included few social scientists.
- Pioneers are mostly generalists who typically bring ideas across disciplinary boundaries by seeking connections between theory and practice. Most researchers investigating the interaction between complexity and social science currently fall into this category of pioneers (Zimmerman, 2009).
- In order for pioneering work to have impact on a particular theory domain, it must be adopted by 'settlers', a majority of researchers and practitioners that places great emphasis on domain context and that try to apply the novel discoveries to optimize their specific domain. Settlers in the end perform the equally important duty of turning novel science and pioneering work into 'normal science' (Kuhn, 1962).

It is in this sense that we think that this research should be seen as pioneering: it searches for the connections between theory and practice, the connections between complexity and design thinking in management, and it needs 'settlers' to turn the insights into 'normal organizational design science' in order to have impact in society.

Having impact in society then, will most probably be the biggest challenge for the method as it is not evident at all to open the eyes of existing conventional thinking leaders as most of them have risen within the hierarchy based on command and control methods. Opening their eyes for the value of a complexity based design approach to effectuate 'transformative organizing', for the importance of collective creativity and the importance of the narrative mode is a big challenge. We realise that developing a method that can have a significant impact in coping with complexity is just the first step in effectuating impact. The second step, getting the opportunity to use the method in practice will most probably be an even bigger challenge.

But it is encouraging that today the army, the police and health care organizations, the stereotypical examples of command and control leadership, are the pioneers in embracing new approaches based on complexity theory. If these complex systems are successful in making the transformation to the networked logic of value co-creation, they will be great examples that complexity approaches have much to offer to individual organizations as well as to society at large.

7.5 Future research

Today, we understand more and more about complex social systems and this study pioneers in the field of design thinking in regard to these systems. However, it will be evident that much still needs to be done in this field. Having developed a complexity-based design approach to liberate collective creativity in a strategic envisioned direction, on itself already opens up numerous questions for future research. In particular, questions include:

Strategic direction
- How to decide upon the legitimacy of the strategically envisioned direction?
- Under which circumstances do individual agents decide to join-up the movement?

Artefact
- How to evaluate the imaginative power of linguistic artefacts?

Collective creativity
- How to foster further processes of collective creativity?
- How to enable processes of collective creativity and collective learning in the strategic envisioned direction?
- What is the relationship between collective creativity and organizational effectiveness?

Competencies of the imagineer
– What is the role the organization development practitioner can play conceptualized as an imagineer?

Managing emerging processes
– How to further develop the thinking about managing emerging processes while making use of the model of dissipative structures?

Process of implementation
– How can organizations and top managers best be approached with this complexity-inspired design method?

Effectiveness of the method
– Is the 'The Utrecht Work Engagement Scale (UWES)' an interesting scale to 'measure' the effectiveness of the design approach?

These are all possible, interesting routes to discover. There are many different directions I would like to explore myself, especially the once on fostering collective creativity.

The opportunities are immense as we consider the new frontiers of designing for organizational emergence suggested by the theoretical and practical findings of this study. The complexity principles, processes and metaphors provide a provocative resource for doing the design work in coping with complexity in social systems. The practice of designing in the narrative mode offers pragmatic ways to explore processes of collective creativity in combination with organizational effectiveness.

This research suggests that what we might be living today is a shift away from the limits of the industrial logic of value creation towards a liberation of the social aspects of value creation and the promise of limitless collective creativity when we genuinely engage in co-designing our collective, meaningful and purposeful future.

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Appendix A | Summary in Dutch – Samenvatting in het Nederlands

Het imagineeren van het 'butterfly-effect': Complexiteit en collectieve creativiteit bij bedrijven en overheden

Designen voor organisatie emergentie

Het transformeren van organisaties, het bewerkstelligen dat een organisatie evolueert naar een meer complexe vorm van functioneren om te floreren in een meer dynamische en turbulente context, is een complex probleem. Het zelf-organiserend evolueren naar een meer complex niveau van functioneren wordt ook wel 'emergentie' genoemd, een woord dat komt van het Engelse werkwoord "to emerge". Dat betekent: "zomaar als vanzelf tevoorschijn treden". In het Nederlands kennen we in deze context de uitdrukking: 'Het geheel is meer dan de som van de delen'. Een emergente eigenschap is een eigenschap die optreedt of wordt waargenomen wanneer een systeem van niveau verandert.

Inmiddels zijn complexiteitswetenschappers ervan overtuigd dat emergentie niet 'als vanzelf' tevoorschijn komt in menselijke systemen (zoals bijvoorbeeld Wikipedia niet als vanzelf is ontstaan) maar dat er wel degelijk voor gedesigned wordt (het induceren van het butterfly effect), zij het tot op heden voornamelijk onbewust van de natuurlijke fenomenen (positive amplification) die we ontketenen. Ondernemers worden nu gezien als degenen die een 'adaptive tension engine' creeren die emergente processen kunnen uitlokken (McKelvey, 2004). Hierdoor verwerft de mens een plaats in de theorie van Prigogine omtrent zelforganisatie en dit via het gebruik van de verbeeldingskracht (Loasby, 2007:1743). Door ons bewust te worden van dat wat we tot op heden onbewust deden, het designen van 'adaptive tension engines', kunnen we ons wellicht ook (beter) bekwamen op dit terrein zoals ook onze kunde groeide op het vlak van industrial design door bewust met die materie aan de slag te gaan.

De specifieke bijdrage aan de wetenschap
Tot op heden bestond er nog geen design benadering die beweert emergentie teweeg te kunnen brengen, laat staan een academisch onderbouwde design benadering. Dit

proefschrift kan dan ook als pionierend organizational design-onderzoek worden bestempeld. Het heeft de design benadering van imagineering gepresenteerd en geevalueerd op haar potentie voor het effectief en duurzaam realiseren van emergentie. De studie bouwt hiermee verder op het concept van 'conditioned emergence' van MacIntosh en MacLean (1999). Deze organisatie-wetenschappers toonden namelijk aan dat het mogelijk is om via actie-gericht onderzoek de voorwaarden te creeren waaronder emergentie kan plaats vinden.

De vooraanstaande emergentie-wetenschapper Goldstein (2011) heeft vervolgens gewezen op het belang van het evalueren van de verschillende constructiebenaderingen die mogelijk zijn om emergentie uit te lokken en hij lanceerde daarbij ook een oproep aan de diverse spelers van de organisatie-gemeenschap om een meer actieve rol te spelen dan de passieve rol die vervat zit in het concept van een zuiver zelf-organiserende benadering. Kortom, organisatie-wetenschappers zijn ervan overtuigd dat emergentie in humane systemen tot op zekere hoogte gericht kan worden uitgelokt omdat de menselijke individuele 'agent' beschikt over de capaciteit om te reflecteren en te verbeelden (dit in tegenstelling tot de 'agents' van andere levende systemen) (Goldspink en Kay, 2010).

Gezien deze menselijke eigenschappen kan emergentie worden uitgelokt in een strategisch vooropgestelde richting, ten minste als de vooropgestelde richting de individuele agents in het collectief kan inspireren tot een collectief creatieve dialoog (reflectie en verbeelding) gevolgd door gedragsverandering (in de meer wenselijke richting) van de individuen in het collectief verband. Verder bouwend op deze inzichten van complexe organisatie-wetenschappers, wordt in dit proefschrift een eerste methode gepresenteerd en geevalueerd om te designen voor emergentie, de design methode die we imagineering noemen omdat hierbij de verbeeldingskracht wordt gebruikt om emergentie te realiseren via het uitlokken van een mindshift en processen van collectieve creativiteit. We hebben imagineering ontwikkeld als een design benadering om transformatie van organisaties te bewerkstelligen in hun systemische context, gebruik makend van de heuristische en de holistische karakteristieken van de narratieve modus van denken en doen (Bruner, 1986).

De methode toegepast en geevalueerd in twee natuurlijke cases

Op basis van het bestuderen van twee natuurlijke design-cases over een periode van tien jaar (aangevuld met meer recent case-materiaal) kunnen we stellen dat alleszins in deze situaties 'emergentie' bewust werd teweeg gebracht via het redesignen/reframen van het business-concept/identiteit in de narratieve modus. De methode werd toegepast en geevalueerd in zowel de overheidscontext met de case van de stad Antwerpen als in een commerciele context, te weten de oudste Belgische retailketen, de retail-keten Veritas. In beide cases hebben we geconcludeerd dat de relatief kleine interventie van het reframen van de identiteit (logo en HRM-instrumenten) emergentie teweeg bracht. In beide organisaties is er sprake van een evolutie van

een 'disconnected' organisatie (de stad werd gemeden door stakeholders vanwege haar overmatige bureaucratische karakter en bij Veritas zat er een faillissement aan te komen op het moment van de interventie) naar een 'connected' organisatie en dit via zelf-organiserende processen. Het reframen van de identiteit (in logo en HRM-instrumenten) was de enige interventie die bewust plaats vond om de transformatie te ontsteken.

Bij beide organisaties is na de interventie de collectieve creativiteit van zowel externe als interne stakeholders volop gaan vloeien en benut geworden in allerlei vormen van co-creatie en co-design die zowel ten goede kwamen aan de betrokken organisatie als betekenisvol waren en zijn voor de bredere samenleving op de langere termijn. In de stad Antwerpen werd er door de betrokken stakeholders een duidelijk verband gesignaleerd tussen de interventie in de identiteit en (in lineaire termen uitgedrukt) een satisfactie-groei van 5% bij de inwoners en een beter investeringsklimaat voor bedrijven hetgeen onder andere bleek uit het winnen van de Financial Times Award voor kleinere steden (een lijst van 52 steden wereldwijd) in 2010. Bij Veritas werd er door de betrokkenen, met name door de CEO, een verband onderkend tussen de interventie in de identiteit en de sterke groei van de keten hetgeen eveneens gezien en gehonoreerd werd in Belgie door het winnen van de retail-award in 2011.

Wat is de relevantie van een dergelijke design benadering?
Zoals reeds gesteld aan het begin van deze samenvatting is organisatie transformatie als proces van emergentie, een complex probleem. De vraag stelt zich dan: hoe belangrijk is het om zo'n design benadering te ontwikkelen en beschikbaar te hebben? Door de groeiende globalisering en de toenemende connectiviteit verschuift de waarde-creatie in de samenleving van een 'goods-dominant logic' naar een 'service-dominant logic' (Vargo en Lusch, 2004 en 2008). Bedrijven, organisaties en instituties die gegroeid en verankerd zijn in die sequentiele en hierarchische cultuur van plannen en controleren, lopen daardoor steeds vaker vast in hun functioneren in de connected society, de vernetwerkte samenleving waarin simultane waarde-creatie domineert over de sequentiele logica.

Waar consumenten steeds beter blijken te weten wat er te koop is op de markt en genieten van de nieuwe 'macht' die hen te beurt valt door de socio-technologische ontwikkelingen, blijken bestaande organisaties de grootste moeite te hebben met het kunnen schakelen naar die nieuwe versnelling, het concurreren met de nieuwe spelers en het functioneren in de connected society. Ramaswamy en Grouillart (2010:109) stellen het als volgt:

> *"The new paradigm of co-creation presents an enormous opportunity for enterprises that can figure out how to harness it. Individuals are far ahead of most organizations in*

> *their eagerness to engage in co-creating value, and organizations must now respond." (Ramaswamy & Grouillart, 2010:109)*
> *"[…] it is the enterprise that is quite not there yet – whether the enterprise is a "profit.com", "social.org", or "public.gov". The co-creation movement must be seen as a journey in organizational transformation to the next paradigm of value creation – one that can lead to new growth and new sources of competitive advantage. […] Welcome to the opportunity to co-create the future of value creation!" (Ramaswamy, 2009:17)*

De evolutie naar de meer complexe vorm van waarde co-creatie is dus een kwestie van transformeren en bestaande bedrijven en instellingen weten meestal wel dat hun manier van waarde-creatie stilaan achterhaald is, maar ze hebben vaak geen idee hoe ze kunnen transformeren. Dat transformeren betreft namelijk niet alleen de eigen organisatie maar ook de context waarin de organisatie functioneert aangezien co-creatie en co-design essentieel zijn in de nieuwe logica. Transformeren is een kwestie van evolueren van een eerder gesloten systeem naar een meer open systeem, een kwestie van evolueren van een share-holder orientatie naar een stake-holder orientatie. Zonder het reframen van de identiteit (in logo en HRM-instrumenten) in een narratief dat inspireert en uitnodigt tot interpretatie, lukt het organisaties haast niet te ontsnappen aan de ingebakken routines en door externen benaderd te worden vanuit een nieuw perspectief. Het gevolg is dat ook een goedwillende organisatie makkelijk terug kan vallen in de bekende patronen of blijft steken in een marketing-aanpassing. Daarmee is ook het belang duidelijk van het articuleren van de reframing in een narratief dat de dialoog duurzaam kan transformeren, immers, transformeren is een kwestie van het duurzaam en inspirerend reframen van het business concept/de identiteit in een meer relevante richting voor de samenleving en een kwestie van een andere rolverdeling.

In feite spreekt men pas van organisatie transformatie als de meerderheid van de betrokken stake-holders het gedrag wijzigt. Pas dan hebben we met transformatie te maken en niet met een of andere operationele- of marketing-aanpassing. Transformatie is daarmee niet alleen een kwestie van organisatie innovatie maar ook een kwestie van systeem innovatie. En aangezien we in de vernetwerkte samenleving steeds vaker te maken krijgen met het falen van onze systemen (het financiele systeem, het gezondheidssysteem, het onderwijssysteem, het polieke systeem om er maar enkele te noemen), is het ontwikkelen en door-ontwikkelen van een dergelijke design methode uiterst relevant.

Complexe problemen vragen om een decentrale aanpak, een inspirerende aanpak die uitnodigt tot lokale, situatie-gebonden interpretatie

Aangezien organisatie transformatie niet het enige complex probleem is, hebben we ook gekeken naar de mogelijk bredere en diepere betekenis van de imagineering design methode. In het proefschrift zijn we daartoe vertrokken van het verschil tus-

sen complexe problemen en moeilijke (complicated) problemen en het verschil tussen 'obligation' en 'inspiration' als aanpak voor de verschillend soortige problemen in de samenleving.

Complexe problemen verschillen in deze van moeilijke (complicated) problemen dat in complexe problemen alles met alles verweven is en dat er dus geen eenduidige oplossing denkbaar is. Moeilijke (complicated) problemen zijn bijvoorbeeld een maanlanding of een kerncentrum bouwen. Een keer we dat gedaan hebben, kunnen we het kunstje keer op keer herhalen. Complexe problemen zijn van een heel andere aard: bijvoorbeeld het opvoeden van een kind of het bedenken van een nieuwe toekomst voor de bibliotheken of het beinvloeden van de atmosfeer in een stad. Bij dit soort problemen is er een hoop onbekenden in het spel en bestaat er geen zekerheid omtrent de toekomst. Oplossingen zijn in deze ondenkbaar en het enige wat we kunnen doen is denken in termen van evolutie.

In de vernetwerkte samenleving neemt de complexiteit, de verwevenheid der dingen, dagelijks exponentieel toe. Het is dus geen overbodige luxe om competenter te worden in het omgaan met complexe problemen. Aangezien het transformeren van de ondernemingslogica van een organisatie een complex probleem is, is dit een zeer geschikt probleem om die competentie te ontwikkelen maar het is zeker niet de enige toepassingsmogelijkheid.

De afgelopen 50 jaar hebben we ons als mensheid gespecialiseerd in het omgaan met moeilijke (complicated) problemen. Analyseren, planning, controle, regelgeving, sanctioneren, meten, … het zijn lineaire vaardigheden waarin we ons bijzonder goed hebben ontwikkeld. Op dit moment denken we er zelfs niet bij na of een probleem moeilijk is dan wel complex, als er zich een probleem aandient dan benaderen we het vanzelfsprekend lineair: er is een probleem en we zoeken naar en komen met een oplossing.

Maar met schade en schande ontdekken we dat er steeds meer situaties zijn waar de lineaire modus te kort schiet. Vele 'nieuwe' en 'onoplosbare' problemen blijken complex van aard: Occupy Wall Street, de Arabische Lente, armoede, file-leed, en dus ook het veranderen en transformeren van organisaties. Complexe problemen vragen om een andere aanpak, we zouden kunnen zeggen: een indirecte aanpak of nog: een aanpak van decentrale controle in plaats van centrale controle, een inspirerende aanpak die uitnodigt tot lokale, situatie-gebonden interpretatie via processen van collectieve creativiteit in plaats van een aanpak die centrale controle voorstaat.

Dat 70% van alle verander-inspanningen falen, wordt steeds vaker toegeschreven aan het feit dat bestaande methoden en technieken van verandermanagement lineair van aard zijn. Conventioneel verander-denken is gericht op gedragsverande-

ring terwijl meer populaire aanpakken (zoals appreciative inquiry en World-Cafe's) gericht zijn op het veranderen van het denken om uiteindelijk het doen te beinvloeden. Die laatste, meer populaire aanpakken blijken in de praktijk (helaas) vaak veel effectiever te zijn (waardoor de gap tussen wetenschap en praktijk eerder groter dan kleiner dreigt te worden). In de organisatie-wetenschap wordt dit probleem recent als dusdanig onderkend en beschreven. Complexe problemen vragen duidelijk om een andere aanpak: 'Inspiratie' blijkt in deze als aanpak veel effectiever dan 'obligatie'. De design-methode van imagineering past in dit spoor.

De evolutie naar de vernetwerkte samenleving vraagt om het complementeren van het conventionele wetenschappelijke perspectief met het perspectief van de levende, niet-lineaire systemen

De groeiende onzekerheid en complexiteit in de samenleving blijken een structurele oorzaak te hebben. Het was de Nobel Prijs Winnaar scheikunde in 1977, Ilya Prigogine zelf die de groeiende turbulentie, onzekerheid en complexiteit toeschreef aan de groeiende connectiviteit. Het feit dat meer mensen mobieler zijn dan ooit, dichter bij elkaar leven en beter verbonden zijn met elkaar en elkaar intenser beinvloeden leidt er toe dat de wereld zich steeds meer gaat gedragen als een open systeem en dat de wetten van de levende, dynamische, niet-lineaire systemen zoals die gearticuleerd zijn in de complexiteitswetenschap, zich steeds meer laten gelden in ons dagelijkse bestaan.

Conventionele benaderingen worden in steeds meer situaties, steeds minder effectief en het is dus zoeken naar nieuwe benaderingen waarbij het complementaire wetenschapsperspectief van de levende systemen steeds meer richtinggevend blijkt te zijn, ook in de management- en organisatiewetenschappen. En daar waar menig academicus en manager dit inzicht tot voor kort nog graag terzijde schoof omdat voorspelbaarheid nu eenmaal handig is, groeit het bewustzijn dat het niet langer verantwoord is de ogen te sluiten voor de groeiende complexiteit van onze realiteit. In 2013 droeg het internationale Drucker-congres in Wenen dan ook de veel betekenende naam van 'Managing Complexity'.

De ontwikkelingen in de driehoek van management, design en complexiteit

Geconfronteerd met groeiende complexiteit wordt er wereldwijd dan ook in twee richtingen gekeken om nieuwe antwoorden te vinden: er wordt gekeken in de richting van de complexiteitswetenschap en er wordt gekeken in de richting van design. Slechts in beperkte mate worden beide richtingen gecombineerd.

Design thinking in management is inmiddels een populair topic geworden waaronder zich binnen de management context allerlei varianten ontwikkelen als 'service design' en 'designing for social change' en 'social innovation'. Wat daarbij opvalt is dat er in deze ontwikkelingen nauwelijks gesproken wordt over het complemeteren

van het conventionele wetenschappelijk perspectief. Er wordt bij wijze van spreken geen onderscheid gemaakt tussen 'conventional design thinking' en wat men zou kunnen noemen 'complex design thinking', design denken dat de inzichten, patronen en principes van de complexiteitswetenschap meeneemt in het designen voor complexe maatschappelijke problemen. Dit lijkt ons een weinig wenselijke situatie aangezien de verwachtingen ten aanzien van designers hoog gespannen zijn als het gaat om het aanpakken van complexe maatschappelijke problemen. Het hanteren van het concept 'complex design thinking' kan mogelijk de ogen openen van designers voor dit complementaire wetenschappelijke perspectief dat met name interessant is om systemische veranderingen te 'genereren'.

Als er in de organisatie- en management wetenschappen gekeken wordt in de richting van complexiteit dan is dat vooral om via concepten uit die wetenschap de realiteit beter te begrijpen (explanatory paradigm) en/of om via het werken met 'big data' te kunnen komen tot modelleren en simuleren (design paradigm vanuit het positivistische perspectief). Met andere woorden, in de driehoek van management, complexiteit en design, domineert enerzijds de positivistische aanpak van modelleren en simuleren (die wel degelijk gebruik maakt van het complexiteitsperspectief) en domineert anderzijds het conventionele design denken dat het complexiteitsperspectief buiten beschouwing laat. Het spreekt voor zich dat wij het gecombineerde spoor als een interessant spoor beschouwen voor verder en meer diepgaand onderzoek.

Implicaties van de studie

Deze dissertatie eindigt met het articuleren van de unieke bijdrage aan de wetenschap en met het beantwoorden van de onderzoeksvragen om vervolgens te resulteren in een discussie over de mogelijke implicaties van de bevindingen op vier terreinen: de implicaties voor het denken over organisatie ontwikkeling en systeem innovatie, de implicaties voor strategisch denken, de implicaties voor design denken en de implicaties voor management educatie.

Appendix B | Glossary/Explanation of concepts

See www.DianeNijs.com/publications/phd-documents

Appendix C | Analysis of case material Antwerp

See www.DianeNijs.com/publications/phd-documents

Appendix D | Analysis of case material Veritas

See www.DianeNijs.com/publications/phd-documents

Appendix E | Strategic Document of the city of Antwerp

See www.DianeNijs.com/publications/phd-documents

Appendix F | Strategic Document Veritas

See www.DianeNijs.com/publications/phd-documents

Curriculum Vitae

Last updated:			2013-12-04	
1	**University of Applied Sciences**		NHTV Breda University of Applied Sciences	
2	**Name**		Diane Nijs	
3	**Department**		Department of Imagineering (Imagineering Academy) Part of Academy for Leisure	
4	**Current post**		Associate Professor Imagineering	
5	**Qualifications**			
	Qualification		*Date*	*Awarding Institution*
	PhD in preparation		13 February 2014	University of Groningen
	Certificate Marketing-Management		1988-89	EHSAL Economische Hogeschool Sint Aloysius – Brussels
	MSc in Leisure, Psychology and Educational Sciences		1985-87	VUB Vrije Universiteit Brussel
	MSc in Physical Education at the Faculty of Biomedical Sciences		1980-84	KUL Katholieke Universiteit Leuven Leuven Grote onderscheiding
6	Previous employment and experience of teaching at HE level			
	Date from	Date to	Position held	Organisation
	2006	Present	Academic Director (Executive) Master in Imagineering	NHTV/Academy for Leisure
	2003	Present	Associate Professor	NHTV/Academy for Leisure
	2001	2003	Director Media and Entertainment Management	NHTV/Digital Academy
	1994	2001	Lecturer International marketing and Management of Attraction Parks	NHTV/Tourism Academy
	1986	1994	Director Leisure Management	NHTV/Academy for Leisure
7	**Brief statement on current research, scholarly or consultancy activities:**			
	My research is oriented on the application of complexity theory to organizations and institutions. I am pioneering in this context in the triangle of management, complexity and design. More specifically I study how the method of imagineering, a method in use in the creative industries to ignite and frame collective creativity, is effective in the creative industries and how these insights might be transferred to other industries and situations in order to realize systemic innovation and organizational emergence.			

	I worked on a long term base with companies such as VRT/Ketnet, the city of Antwerp, retail chain Veritas in Belgium and with companies such as KLM, ANWB, TUI, Center Parks, NS, Cap Gemini, Holland Casino, Efteling and many other companies in the tourism/leisure and recreational industries in the Netherlands, also in a collaborative research project that is still running at the moment. I am active in executive education and regularly I am a presenter at conferences on issues such as Strategizing under Complexity, Complexity and Collective Creativity, Design thinking in Management and Transformation by Design.				
9	**Recent/key research publications and presentations:**				
	Author(s):	*Year*	*Title*	*Publisher*	*ISBN*
	Nijs, D. and Terzieva, L.	2013-2014	Reframing the libraries in the Province of Noord-Brabant	NHTV/Cubiss	
	Nijs, D.	2013	NHTV Leadership course with PennState University	NHTV/PennState University	
	Nijs, D.	2012	NHTV Leadership course with PennState University	NHTV/PennState University	
	Nijs, D.	2012	Reframing Design Thinking in Management – at the Experience Design Event	Dutch Design Week -Eindhoven	
	Nijs, D. and Engelen, Van J.	2012 (May 31)	"Complexity as an alternative resource for design thinking in the creative economy" at the 'Creative practice, complexity and the creative economy' -Research Symposium	Business School-Birmingham University, UK	
	Nijs, D. and Engelen, Van J.	2011	Provocation in the topic: Potentials and limits of Design Thinking at the Designing Business Conference	Designing Business Conference Barcelona	
	Nijs D. and Engelen, Van J.	2010	Imagineering, Towards a complexity inspired design approach to transform the enterprise logic.	Presented at Euram Conference in Rome – "Back to the Future"-In preparation for publication	
	Nijs D.	2009	Value creation in the 21st century. An imaginative narrative methodology.	Internal Publication	
	Nijs D. and Peters F.	2002	Book: Imagineering, creating long lasting experience worlds	Boom Amsterdam	90 5352 8369